

# SPECIAL PROVISIONS

LITCHFIELD ROAD - DESERT COVE ROAD TO CACTUS ROAD  
CACTUS ROAD - LITCHFIELD ROAD TO BNSF RAILROAD  
CIP #21517, CIP #21503 & CIP #21509

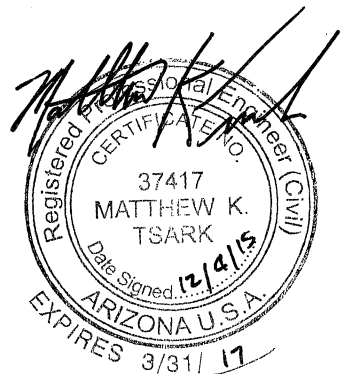
Prepared for the City of Surprise

by:

**PREMIER**  
ENGINEERING CORPORATION  
Premier Project No. 2015009

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## TABLE OF CONTENTS

### PART A: SCOPE OF WORK..... 1

### PART B: GENERAL INFORMATION..... 2

1. ....Sales and Use Taxes.....	2
2. ....Preconstruction Conference/ Weekly Meetings.....	2
3. ....Public Notification .....	3
4. ....Construction Practice .....	3
5. ....Inspection .....	3
6. ....Workmanship.....	4
7. ....Limits of Work.....	4
8. ....Plans and Shop Drawings .....	5
9. ....Cooperation with Utilities.....	9
10. ....Commencement, Prosecution and Progress .....	11
11. ....Construction Schedule .....	12
12. ....Limits of Operations .....	12
13. ....Additional Considerations .....	13
14. ....Sawcutting.....	13
15. ....Material Safety Data Sheets.....	13
16. ....Permits .....	13
17. ....Schedule of Labor and Equipment.....	14
18. ....Specialty Signs.....	14
19. ....Record Drawings .....	14
20. ....General Requirements for Signing and Marking .....	15
21. ....General Requirements for Roadway Lighting .....	15
22. ....General Requirements for Landscaping and Irrigation.....	15

### PART C: GENERAL BID ITEMS ..... 18

Item 1 -- Traffic Control .....	19
Item 2 -- AZPDES Plan and Notification .....	28
Item 3 -- Construction Surveying .....	29
Item 4 -- Mobilization / Demobilization.....	30
Item 5 -- LINE ITEM NOT APPLICABLE .....	30
Item 6 -- Record Drawings .....	31

### PART D: CIVIL BID ITEMS..... 32

Item 7 -- Roadway Grading (Roadway Excavation).....	32
Item 8 -- Earthwork for Retention Basins.....	32
Item 9 -- Dumped Angular Riprap, D50= 6” .....	33
Item 10 -- Subgrade Preparation .....	33
Item 11 -- Aggregate Base Course, 9” Thick.....	33
Item 12 -- Asphalt Milling, 1-1/2” Thick.....	33
Item 13 -- Asphalt Concrete, 3” Thick Type ‘C’ 3/4.....	34

#### Special Provisions

Litchfield Road – Desert Cove Road to Cactus Road

Cactus Road – Litchfield Road to Burlington Northern Santa Fe Railroad

Item 14 --	Asphalt Concrete, 2" Thick Type 'D' 1/2.....	34
Item 15 --	Asphalt Concrete, 1-1/2" Thick Type 'D' 1/2 .....	35
Item 16 --	Concrete Single Curb, MAG Detail 222, Type "A" .....	36
Item 17 --	Concrete Sidewalk, MAG Detail 230 .....	36
Item 18 --	Concrete Curb & Gutter, MAG Detail 220-1, Type "A".....	37
Item 19 --	Concrete Driveway, COS Detail 3-10 .....	37
Item 20 --	Concrete Driveway, MAG Detail 250-1 .....	37
Item 21 --	Concrete Median Nose Transition, MAG Detail 223 .....	37
Item 22 --	Concrete Curb Ramp, Modified COS Detail 3-11 .....	38
Item 23 --	Adjust Manhole Frame & Cover, MAG Detail 422, COS Detail 6-03B & 7-01 ....	38
Item 24 --	Adjust Manhole Frame & Install Watertight Cover, MAG Detail 224, 422 & 424-1, COS Detail 6-03B & 7-01.....	38
Item 25 --	Adjust Water Valve Box, Frame & Cover, MAG Detail 391-1 & 391-2, COS Detail 6-24 .....	38
Item 26 --	Adjust Private Utility Valve Box, Frame & Cover MAG Detail 391-1 & 391-2....	39
Item 27 --	Adjust Private Utility Manhole Frame & Cover, MAG Detail 422.....	39
Item 28 --	Asphaltic Concrete Pavement Removal.....	39
Item 29 --	Concrete Single Curb, Curb & Gutter Removal .....	39
Item 30 --	Concrete Sidewalk Removal.....	39
Item 31 --	Concrete Pad Removal.....	40
Item 32 --	Concrete Curb Ramp Removal .....	40
Item 33 --	Concrete Median Nose Removal .....	40
Item 34 --	Chain Link Fence and Gate Removal .....	40
Item 35 --	Pipe Culvert and Headwall Removal .....	41
Item 36 --	Irrigation Pipe Removal .....	41
Item 37 --	Stand Pipe Removal .....	41
Item 38 --	Remove Fire Hydrant Assembly.....	41
Item 39 --	Install Chain Link Fence and Gate.....	42
Item 40 --	Install Fire Hydrant Assembly, MAG Detail 360-2.....	42
Item 41 --	Survey Marker, MAG Detail 120, TYPE 'A' .....	43
Item 42 --	Install 3" PVC Traffic Conduit .....	43
Item 43 --	Install Communications Pull Box, COS Detail 4-15 .....	43
Item 44 --	Install No. 7 Pull Box, COS Detail 4-06.....	43
Item 45 --	8' Concrete Scupper, MAG Detail 206 (Mod.) .....	43
Item 46 --	10' Concrete Scupper, MAG Detail 206 (Mod.) .....	43
Item 47 --	Concrete Drop Inlet, MAG Detail 501-5 .....	44
Item 48 --	Concrete End Section, MAG Detail 545.....	44
Item 49 --	Pipe, Reinforced Concrete, Class III, 18" .....	44
Item 50 --	Dual-Chamber Drywell.....	45
Item 51 --	Install 6" Gate Valve, Box, Frame & Cover, MAG Detail 391-1-C .....	45
Item 52 --	Pipe, Ductile Iron Pipe, Class 350, w/ Restrained Joints, 6" .....	45
Item 53 --	Install 1-1/2" Reclaimed Water Service Connection, COS Detail 6-20 .....	46
Item 54 --	Install 4" Schedule 40 PVC Irrigation Sleeve.....	46
Item 55 --	Concrete Barrier Removal .....	47
Item 56 --	Water Service Pipe Removal .....	48
Item 57 --	Water Valve Removal.....	48

#### Special Provisions

Litchfield Road – Desert Cove Road to Cactus Road

Cactus Road – Litchfield Road to Burlington Northern Santa Fe Railroad

<b>PART E: SIGNING AND MARKING BID ITEMS .....</b>	<b>48</b>
Item 58 -- Remove and Salvage Traffic Sign .....	48
Item 59 -- Relocate Sign (on New Post and Foundation) .....	48
Item 60 -- Remove Pavement Marking (Incl. Raised Pavement Markers) .....	49
Item 61 -- 4" White Thermoplastic Traffic Stripe .....	49
Item 62 -- 4" Yellow Thermoplastic Traffic Stripe .....	49
Item 63 -- 8" White Thermoplastic Traffic Stripe .....	49
Item 64 -- 12" White Thermoplastic Traffic Stripe .....	49
Item 65 -- 12" Yellow Thermoplastic Traffic Stripe .....	49
Item 66 -- 24" White Thermoplastic Traffic Stripe .....	49
Item 67 -- Thermoplastic Symbol (Left Turn) .....	49
Item 68 -- Thermoplastic Symbol (Right Turn) .....	49
Item 69 -- Thermoplastic Symbol (RR Crossing) .....	49
Item 70 -- Reflectorized Raised Pavement Marker (Type D) .....	50
Item 71 -- Reflectorized Raised Pavement Marker (Type G) .....	50
Item 72 -- Perforated Sign Post .....	50
Item 73 -- Perforated Sign Post Foundation .....	50
Item 74 -- U-Channel Sign Post .....	50
Item 75 -- U-Channel Post Installation .....	50
Item 76 -- Flat Sheet Aluminum Sign Panel, High Intensity Grade .....	50
 <b>PART F: ROADWAY LIGHTING BID ITEMS .....</b>	 <b>51</b>
Item 77 -- 1-2½" PVC Conduit (Trenching) .....	52
Item 78 -- 2-2½" PVC Conduit (Trenching) .....	52
Item 79 -- 1" SONOTUBE Conduit (from Pole to Pull Box) .....	52
Item 80 -- Install pull box (APS furnished) .....	53
Item 81 -- Miscellaneous Work for Street Lights and Power Supply per APS design (Conduit Installation, Ground Rods etc.) .....	53
 <b>PART G: LANDSCAPING BID ITEMS .....</b>	 <b>54</b>
Item 82 -- Grading, Excavation, and Export of Median On-Site Soil .....	54
Item 83 -- Soil Preparation, Amendments & Conditioners .....	55
Item 84 -- Trench Excavation Backfill and Compaction per MAG Section 601 .....	58
Item 85 -- Shrubs 1 Gallon .....	58
Item 86 -- Shrubs 3 Gallon .....	58
Item 87 -- Shrubs 5 Gallon .....	58
Item 88 -- 2" Caliper Tree .....	58
Item 89 -- 1/2" Screened Decomposed Granite .....	58
Item 90 -- 1 1/2"-3" D.G.(Pit Run Rock) .....	58
Item 91 -- Plant Establishment Guarantee and Maintenance .....	58
 <b>PART H: IRRIGATION BID ITEMS .....</b>	 <b>64</b>
Item 92 -- Electrical, 10 & 16 Station, Centrally Operated Controller and Cabinet with hand held remote controls (1 per Controller) .....	64
Item 93 -- Wireless Soil Sensor, Complete Installed, Tested- 1 per Electrical Controller .....	64

Special Provisions

Litchfield Road – Desert Cove Road to Cactus Road

Cactus Road – Litchfield Road to Burlington Northern Santa Fe Railroad

Item 94 --	Soil Moisture Sensor, Complete Installed, Tested.....	64
Item 95 --	1" Reduced Pressure Backflow Prevention Unit and Enclosure, with Concrete Pad .....	66
Item 96 --	1" Brass Master Valve .....	67
Item 97 --	1-1/2" Sch 40 Flow Sensor .....	67
Item 98 --	1" Remote Control Valve and Assembly w/Wye Strainer, Pressure Regulator, and Box (Purple).....	67
Item 99 --	1 1/2" Sch 40 PVC Mainline (Purple) .....	67
Item 100 --	1" Sch 40 PVC Irrigation Pipe (Purple).....	67
Item 101 --	3/4" Sch 40 PVC Irrigation Pipe (Purple).....	67
Item 102 --	1/2" Sch 40 PVC Irrigation Pipe (Purple).....	67
Item 103 --	Metal Locator Tape.....	67
Item 104 --	Flush Caps and 7" Round Box (Purple).....	67
Item 105 --	Mainline Gate Valve and 10" Round Box (Purple) .....	67
Item 106 --	Isolation Valve and Box for Lateral Lines (Purple).....	67
Item 107 --	Multi-Port Emitter and Riser Assembly w/Bug Cap .....	67
Item 108 --	4" Sch 40 PVC Irrigation Sleeve .....	67
Item 109 --	6" Sch 40 PVC Irrigation Sleeve .....	67
Item 110 --	Electrical Conduit Extension .....	67

## **PART I: ALTERNATE BID ITEMS.....72**

Add Alternate Bid Item 1 – 4"x8" Decorative Pavers.....	73
Add Alternate Bid Item 2 – 8"x8" Concrete Header (At End of Each Section of Pavers).....	73
Deduct Alternate Bid Item 1 – Shrub 3 Gallon.....	74
Deduct Alternate Bid Item 2 – Multiport Emitter and Riser Assembly w/ Bug Cap .....	74
Deduct Alternate Bid Item 3 – 3/4" PVC Pipe .....	75

## **PART A: SCOPE OF WORK**

This project is located in the City of Surprise. The limits of improvements are Litchfield Road from Desert Cove Road to Cactus Road and Cactus Road from Litchfield Road to the Burlington Northern Santa Fe Railroad.

The work consists of widening the roadway to the east of Litchfield Road and to the south of Cactus Road, curb and gutter, linear retention basins and inlets, raised median, street lights, landscaping, irrigation, traffic signing, striping and marking, and other miscellaneous work.

The work embraced herein shall be performed in accordance with the requirements of the following separate documents except as modified in these Special Provisions or on the Contract Plans. If a bid item is identified by more than one Standard Specification, the following is listed in priority.

- City of Surprise Supplemental Standard Details, Feb, 2008 (Revised May 2011, August 2012)
- City of Surprise Special Provision for Traffic Control under Permit
- City of Surprise Engineering Civil Inspection Guideline Requirements, Revised thru 1/1/2007
- City of Surprise Civil Inspection Documents and Testing Requirements, Revised thru 1/1/2007, available on-line at [surpriseaz.com](http://surpriseaz.com).
- Maricopa County Department of Transportation Supplement to the Maricopa Association of Governments' Uniform Standard Specifications (January 2014)
- Maricopa Association of Governments "Uniform Standard Specifications for Public Works Construction" (January 2015)
- Maricopa Association of Governments "Uniform Standard Details for Public Works Construction", (January 2015)
- Arizona Department of Transportation, Standard Specifications for Road and Bridge Construction, Edition of 2008, Revised thru 10/27/2014.
- Arizona Department of Transportation, Highways Division, Traffic Signals & Lighting Standard Drawings, 2004.
- Arizona Department of Transportation, Signing and Marking Standard Drawings, 2002.
- Arizona Department of Transportation, Structures Standard Drawings, 1992.

- Arizona Department of Transportation, Roadway Engineering Construction Standard Drawings, May 2012.
- Manual on Uniform Traffic Control Devices for Streets and Highways, 2009 edition (Revised thru May 2012) and Arizona Supplement to the 2009 edition, (Revised thru January 2012)
- All other City of Surprise Department policies and procedures where applicable.

The above Items of work along with the construction requirements are adequately described and defined in the Uniform Standard Specifications for Public Works Construction sponsored and distributed by the Maricopa Association of Governments (MAG) along with the MAG Uniform Standard Details and the City of Surprise Supplements thereto, latest revisions, or within these special provisions. In the event of conflict, the City of Surprise Supplements will prevail.

The information written into these special provisions will:

- Describe any special or unusual conditions.
- Explain details of the work not covered in the MAG Specifications and Details or the City of Surprise supplements thereto.
- Relate certain work to specific bid Items or payment quantities.
- Contain the specifications and/or requirements of utility companies affected or included within the drawings and specifications of this project.

General construction notes for City of Surprise Public Works projects are included in the plan set and shall be representative, unless specifically noted otherwise, to all plan sheets.

## **PART B: GENERAL INFORMATION**

### **1.Sales and Use Taxes**

The Contractor shall include all applicable sales or use taxes in the bid and in accordance with Arizona Revised Statutes 42-1316 and 42-1409.

### **2.Preconstruction Conference/ Weekly Meetings**

Preconstruction Conference: The Contractor and all major subcontractors shall attend a preconstruction conference meeting at a time and location designated by the City. The Contractor shall be prepared and ready to present to the City all required schedules, plans, etc., as described elsewhere in these special provisions and within the MAG Standard Specifications.

Weekly Meetings: The Contractor shall plan for and attend weekly meetings with the City at a location and designated time determined by the City. The Contractor shall include in the construction schedule adequate time for weekly construction progress meetings.

Contractor shall submit a 2-week schedule at each meeting and prepare and distribute meeting minutes within 48 hours following the meeting.

Contract Documents: Approved drawings, data, mixes and certificates as they are returned to the Contractor will become a portion of the Contract Documents.

### **3. Public Notification**

Unless otherwise directed by the City, the Contractor shall notify all residents, businesses, and schools located along the frontage (1/4 mile radius) of a specific project by handbill or door-hanger, no later than 48 hours and no earlier than 2 weeks prior to commencement of the work phase. The handbill shall include the statement that on pavement parking will not be permitted during the affected times, the Contractor's phone number, and alternate work day schedule in case of delay due to weather. The Contractor shall re-notify all areas where work was not performed as scheduled. Door-hangers shall be bright yellow with red lettering and shall be 3 to 5 inches wide by 10 to 12 inches long. Door-hangers shall be pre-cut to be readily secured to doorknobs and pulls, so that they cannot be inadvertently detached or blown off. Any costs associated with notification or re-notification shall be considered incidental to the project.

The Contractor shall provide black-on-orange pre-construction advisory signs to be placed on commuter streets to be serviced, two full calendar weeks prior to start of the project. The signs shall state that a roadway improvement project is to take place, the planned dates of start and finish, and shall state that an alternate route of travel is suggested. Sign dimensions may vary according to application and will be determined by the City. This provision is for use on streets where handbill notification is not practical. This requirement is not a separate pay Item.

The City may require the stationing of lighted variable message signs prior to and during the work phase for pre-notice and to facilitate traffic movement and promote work zone safety. Lighted variable message boards used during the project phase will be invoiced to the City at the actual cost incurred by the Contractor. All other traffic control costs are considered incidental to the project.

The Contractor will coordinate with the City Engineer or their Representative for Public Notification Guidelines.

### **4. Construction Practice**

All construction practices and procedures shall conform to Section 107 of the Contract Works Hours and Safety Standards Act, (US Stat. 96, 40 USC 327) the latest revisions shall prevail.

### **5. Inspection**



Inspectors may be stationed on the work to report to the City or his Designee as to the progress of the work, the manner in which it is being performed, and also to report whenever it appears that material furnished or work performed by the Contractor fails to fulfill the requirements of the specifications and contract. The Inspector may direct the attention of the Contractor to such failure or infringement but such inspection shall not relieve the Contractor from any obligation to furnish acceptable materials or to provide completed construction that is satisfactory in every particular.

In case of any dispute arising between the Inspector and the Contractor as to material furnished or the manner of performing the work, the Inspector shall have the authority to reject materials or suspend the work until the question and issue can be referred to and decided by the City. Inspectors are not authorized to revoke, alter, enlarge, relax, or release any requirements of the specifications. Inspectors shall in no case act as foremen or perform other duties for the Contractor or interfere with the management of the work by the Contractor.

Inspection or supervision by the City or Designee shall not be considered as direct control of the individual workman and his work. The direct control shall be solely the responsibility of the Contractor.

## **6. Workmanship**

Where not more specifically described, workmanship shall conform to all of the methods and operations of best standards and accepted practices of the trade or trades involved and shall include all Items of fabrication, construction, or installation regularly furnished or required for completion.

All work shall be executed by tradesmen skilled in their respective lines of work.

When completed, all work shall have been durably and substantially built and shall present a neat, workmanlike appearance.

## **7. Limits of Work**

The Contractor in cooperation with the City's Inspector shall verify the boundaries of the work prior to the start of construction. Upon starting construction, the Contractor shall be responsible for replacing all missing, removed or damaged boundary delineating materials (i.e. walls, fences, etc.) not already identified as contract work items on the plans and in these special provisions. Boundaries of work are hereby established as the furthest line distant left or right of the construction centerline as existing right of way, new right of way, drainage easement, or temporary construction easement as shown on the plans. Once construction activities have commenced, no disturbance of the existing ground beyond such delineated line shall take place. Intrusion outside of the limits by the Contractor will be penalized \$100 per square yard. Any aggregated amount shall be deducted from the Contractor's final payment.

## **8. Plans and Shop Drawings**

Plans and Shop drawings shall conform to Section 105.2 of the MAG Standard Specifications except as modified as follows:

The Contractor shall furnish to the City of Surprise's Construction Coordinator, product data, material certificates, mix designs and shop drawings in sufficient detail to show complete compliance with all specified requirements, including but not necessarily limited to the following:

### **Materials:**

The Contractor shall furnish to the City of Surprise's Project Manager as applicable, product data, material certificates, mix designs and shop drawings in sufficient detail to show complete compliance with all specified requirements, including but not necessarily limited to the following:

### **Product Data:**

#### **A. Civil**

- Asphalt Mix
- Concrete Mix
- Aggregate Base Course
- Rip Rap
- Manholes and appurtenances
- Water Valves and appurtenances
- Water piping and appurtenances
- Fire Hydrant
- Concrete Scuppers
- Dry Well
- Pipe Culverts
- Culvert Headwalls and End Sections

#### **B. Roadway Lighting**

- Street Light Poles & Mast Arms
- 130 W Luminaires
- Pull Boxes
- Conduits
- Grounding System

#### **C. Landscaping**

- Ammonium Phosphate
- Pre-Emergent
- Broadleaf Herbicide

#### **D. Irrigation**

- Solar Controller, Locking Cabinet and Associated equipment; connectors and wire
- Mainline pipe (1 1/2"), Lateral pipe (1", 3/4", and 1/2"), Fittings, Sleeves and pipe wiring
- Backflow Prevention Units and Enclosures
- Solvent Weld Cement and Primer
- Ball Valves
- Gate Valve
- Multi and Single Port Emitters
- Drip Emitter Assembly with Pressure Regulator, and Wye Strainer
- Wire Connectors and Pull Boxes
- Valve Boxes and Stainless Steel Hardware
  - Rectangular Jumbo
  - Round as sized by plans and details
- Flush End Caps
- Metal Locator Tape
- Additional items as required by the project plans and details

Product data shall include information such as the manufacturer's printed recommendations, compliance with recognized trade association standards, application of testing agency labels and seals, product dimensioning, and notation of coordination requirements.

#### **Certificates:**

##### **A. Signing and Marking**

- Striping Materials

##### **B. Landscaping**

- Backfill Soil Mix
- Material Safety Data Sheets for herbicides and pesticides

The certificates shall be prepared by the Manufacturer or testing agency thereof and should include technical specifications and compliance with industry trade association and testing agency standards.

#### **Shop Drawings:**

##### **A. Civil**

- Sequence of Construction details
- Utility protection plans
- Erosion Control plans (SWPPP)
- Traffic control plans-haul routes

##### **B. Landscaping**

- Landscape Schedule
- Plant Source Listing

Shop drawings shall include the name of the project, project number, date prepared, name of the Preparer, Contractor, and Subcontractor, if applicable. All dimensions and identification of products and materials included, along with notation of any coordination requirements and established field dimensions/measurements/verifications shall be clearly shown or noted.

Drawings of minor or incidental fabricated material and/or equipment may not be required by the City of Surprise. The Contractor shall furnish the City tabulated lists of such fabrications, showing the names of the manufacturers and catalog numbers, together with samples of general data as may be required to permit determination by the City as to their acceptability for incorporation into the work.

Landscape Schedule: Submit proposed planting schedule, indicating dates for each type of landscape work. Once accepted, revise dates only as approved in writing, after documentation to explain reasons for delays.

Plant Source Listing: Submit plant list for entire job with complete plant name, source for each plant type, quantity, supplier name, address, phone number, and sales contact person

### **Samples:**

#### **A. Civil**

- Aggregate base course
- Rip Rap

#### **B. Landscaping**

- Decomposed Granite (10 lb.)
- Planter Pit Backfill Mix (10 lb.)
- Gypsum (3 lb.)
- Commercial Fertilizer (1 lb.)
- Soil Sulphur (1 lb.)

Samples shall be representative of the materials to be incorporated into the project and submitted in sufficient quantity to permit evaluation and/or comparison.

Decomposed Granite: 10 # sample for all types required in closed/sealed container with label specifying: size gradation, color per project plans, source, and contact information.

Planter Pit Backfill Mix: 10 # sample in a closed/sealed container with label specifying type, source, and contact information. All components of soil mix shall be identified with percentage of each component in mix. Soil mix shall be from a local supplier that provides horticultural grade planting medium.

Backfill Mix Certification: The contractor shall obtain, pay for, and provide lab test results for the backfill mix and all components to be used on this project. Certification shall be for the material proposed for this project.

Gypsum 3 # sample in closed/sealed container with label specifying product name, manufacturer, source, and application rate and contact information.

Commercial Fertilizer: 1# sample in closed/sealed container with label specifying product name, manufacturer, source, application rate and contact information. Complete fertilizer of neutral character, with 50% of elements derived from organic sources and containing not less than 16% total nitrogen, 20% available phosphoric acid and 0% soluble potash.

Soil Sulphur: 1# sample in closed/sealed container with label specifying product name, manufacturer, source, application rate and contact information. Elemental sulphur (99.5% pure), commercially prepared so that 100% passes a 15 mesh screen and 50% passes a 50 mesh screen.

### **Distribution and Review:**

The contractor shall anticipate and schedule for a two week review period by the City of Surprise and/or its designee during which time will either approve, disapprove, or request modifications. The latter two will require re-submittal of the material and a subsequent additional review period. This process shall be repeated until all submitted materials have been approved.

Shop drawings shall be on sheets in standard size increments between 8 1/2" x 11" and 11" x 17" or 24" x 36". All drawings shall indicate the name of the job, the City's job number, date, names of the Contractor, Subcontractor, and Preparer, and the date of approval by the Contractor. All other data, certificates, or mix design reports shall be presented on 8 1/2" x 11" formats, or as provided by the Supplier/Manufacturer.

Five (5) Contractor approved copies along with a letter of transmittal shall be delivered to the City's Construction Coordinator. The Contractor shall first review all submitted data for compliance with specification and job requirements. Any Contractor comments, recommendations, etc. shall be clearly noted on the submitted data.

If the submittal is acceptable, three (3) copies will be stamped approved, dated, initialed by the Reviewer, and returned to the Contractor.

If the submittal requires corrections or is rejected, three (3) copies along with an explanation of the outstanding concerns will be returned to the Contractor for revision and resubmitted as described above.

Re-submittal of any required corrections shall be made within ten working days.

### **Contract Documents:**

Approved drawings, data, mixes, and certificates as they are returned to the Contractor will become a portion of the Contract Documents.

## **9. Cooperation with Utilities**

Cooperation of Utilities shall conform to Section 105.6 of the MAG Standard Specifications except as modified as follows:

Utility locations shown on the plans are approximate. The contractor shall be responsible for identifying all underground utility locations where construction occurs. The contractor shall notify Blue Stake (602-263-1100) at least two (2) working days prior to beginning construction for field location of existing utilities. Should a utility be hit during construction activities, the contractor shall contact Blue Stake and the utility company immediately.

If conduit runs are to be installed by directional drilling, the Contractor shall be responsible for the potholing all utility locations before drilling.

The contractor shall exercise special care and shall follow the utility company's procedures while working near high pressure gas lines or high voltage overhead or underground electric facilities.

The locations of existing underground utilities have been shown on the plans to the best of the Design Engineer's knowledge; however, it shall be the Contractor's responsibility to field verify all utility locations and to coordinate in a timely manner with the pertinent utility companies so that any obstructing utility installation may be adjusted without delay to the Contractor's project schedule. Contractor shall adequately protect and maintain all existing utilities. Any utility, whether shown or not, damaged due to construction shall be repaired immediately at the contractors expense.

In addition, the City of Surprise shall not consider additional compensation requests from the Contractor to perform any potholing, utility company coordination, etc. needed to locate/verify utility location, to cooperate with utilities in adjusting schedule as needed to allow for utility company work, relocations, etc.

The following utility companies are known to have facilities in the area of this project. The appropriate individuals to contact and their telephone numbers are listed for the Contractor's convenience:

<b>Utility Provider</b>	<b>Contact Name</b>	<b>Phone Number</b>
Arizona Public Service (APS)	Ron Gandara	602-371-7546
Burlington Northern Santa Fe Railroad	Matthew Keim	
CenturyLink	Eric Hitchcock	602-460-1233

City of Surprise	David Moberly	623-222-6146
City of Surprise	Gabriel Gonzalez	623-222-1738
Cox Communications	Ryan Quagliata	623-328-4252
EPCOR	Josh Vig	623-445-2495
Southwest Gas Corporation	Yvonne Aguirre	602-484-5338

### **Arizona Public Service:**

The Contractor shall contact Arizona Public Service (APS) representative a minimum of 48-hours prior to any construction activity adjacent APS facilities.

Adjustment of existing manhole rings and covers shall be performed under the supervision of an APS representative.

### **Cox Communications:**

Allow a minimum of 45-days to resolve undetermined conflicts that arise as a result of the construction of this project. If additional time is required a Cox representative will communicate during the relocation process. When crossing Cox Communications facilities the contractor shall pothole to determine depth and maintain a minimum of 12 inches of vertical and horizontal separation from the proposed facility. Support and protect all Cox Communications facilities during construction. Cox Communications does not maintain installation records of customer drops that may conflict with this project. Notify Cox Communications Engineering Department of all utility coordination meetings, pre-construction meetings and construction schedules including the anticipated construction start date.

### **Southwest Gas:**

There are underground gas lines running throughout the Project length. During construction, care will need to be taken to maintain appropriate clearances from the gas line. Southwest Gas does not provide depth information for natural gas facilities. It is recommended that the Contractor evaluate each gas pipeline location by potholing to determine the exact elevation of the gas pipe. We require a minimum of 36" from final grade for gas facilities.

Once mechanical trenching is in progress, do not dig within two feet of a gas pipe. This trenching shall be done by hand in order to prevent any damage to the gas pipe. In the event the Contractor should "hook" or otherwise strain a gas pipe while excavating, a call shall be placed to (602) 271-GASS (602-271-4277).

Even though there may not be any apparent damage, the strain may have damaged the wrap or a portion of the buried pipe or fittings at other locations causing a leak in the surrounding area. Also, if a steel facility is exposed and the pipe coating is found to be in need of repair, contact Southwest Gas so a crew can be dispatched to rewrap the pipe. This is a service provided by Southwest Gas at no cost to the Contractor so they can monitor their steel facilities and minimize the possibility of corrosion.

When the excavations are complete, all exposed gas pipes shall be protected. If the trench is more than three feet wide, the pipe must be supported in a manner where the supporting material does not damage the pipe or its protective wrapping.

Before backfilling, Southwest Gas requires six inches of bedding, one inch on the side and six inches of shading with sand or material free of rocks and able to pass through a 3/8 inch screen. This will provide a firm support under the facility and prevent damage to the pipe or pipe coating from the backfilling operation. Do not drop backfill directly over the gas pipe. During the compaction process, use extra care when directly over the gas pipe in order to avoid any damage.

In addition, the Southwest Gas system has Regulator Stations, pipeline valves, locating stations, test points and underground vaults each with protective valve box lids and vault manhole covers. These are designed to be flush with the existing ground. Under U.S. Dept. of Transportation's Pipeline Safety Regulations and Southwest Gas operating procedures, these facilities are required to be accessible at all times.

Southwest Gas will paint yellow all protective valve box lids and vault manhole covers. It will be the responsibility of the Contractor to make sure these are protected during construction. The Contractor will be responsible for adjustments to all valve box lids and vault manhole covers due to grading and paving per MAG Details 391.1 and 391.2. Contact Southwest Construction at 43rd Operations (602) 484-5350 for coordinating work and inspection. For emergencies, call (602) 271-GASS (4277).

Be aware that there may be abandoned steel gas lines that may also be located within the project limits that are potentially coated or wrapped with unidentified materials. Southwest Gas treats all of its steel gas pipe with unidentified coating/wrapping materials as potentially containing asbestos. Accordingly, whenever such pipe is in direct conflict and requires removal, it must only be done so by one of Southwest Gas's NESHAP certified contractors. The costs associated with such removal will be the responsibility of the City. Contact Southwest Gas in advance to coordinate removal.

## **10. Commencement, Prosecution and Progress**

Commencement, Prosecution and Progress shall conform to Section 108.2 of the MAG Standard Specifications except as modified as follows:

The Contractor shall perform, with his own organization, work amounting to not less than 50% of this contract.



## **11. Construction Schedule**

Construction Schedule shall conform to Section 108.4 of the MAG Standard Specifications except as modified as follows:

The Contractor shall furnish the City a construction schedule for review. The City's review of the Contractor's schedule is for the purposes of 1) the City's staffing the project as may be required; 2) to insure general compliance with the contract documents as it relates to the completion of the work; and 3) to monitor and evaluate the construction status for purposes of approving progress payments. In the event the schedule does not contain sufficient information to meet the above purpose, as determined by the City, the Contractor shall resubmit a new schedule with the additional information requested by the City. The construction schedule shall not be changed without the written consent of the City. The orderly procedure of all work to be performed shall be the responsibility of the Contractor.

The schedule shall identify the work to be performed, including the location and duration of planned activities. Submittals shall be made a minimum of seven days prior to the planned work to allow sufficient time for the City to review and schedule any necessary inspections.

The Contractor shall provide weekly updates to the construction schedule for review with the Construction Coordinator or duly authorized representative. Failure to provide such weekly updates will result in retention of monthly progress payments until the schedule is updated.

Review of a submitted schedule by the City shall in no way be construed as an affirmation or admission that the schedule is reasonable or workable which responsibilities remain the obligations-of the Contractor. When the schedule shows a completion prior to the contract completion date, this extra time between the contract completion date and the scheduled completion date (float), may be used by the City without additional compensation to the Contractor. The City shall not be liable to the Contractor for any damages for delay if the Contractor completes the work prior to the expiration of the original Contract completion date or as modified by approved change orders, if any.

The Contract Time for the Litchfield Road project will be 60 calendar days.

The Contract time for the Cactus Road project will be 120 calendar days.

## **12. Limits of Operations**

Section 108.5, Limitations of Operations of the MAG Standard Specifications are modified as follows:

The project may be sequenced as the Contractor desires, subject to review by the City.

The Contractor shall coordinate their schedule with APS for the relocation of the overhead power poles along Cactus Road. The time required for APS to complete this work shall be incorporated

into the overall schedule for the project. Construction for work carried out by APS will take place during the months of March through May of 2016.

Access to residents, businesses and City of Surprise along Litchfield Road, Cactus Road and Intersecting Side Streets:

The Contractor shall schedule his work in such a manner that once construction begins, it shall be completed in an expeditious manner. Access to businesses and residences must be maintained between the hours of 5:00 AM and 10:00 PM. Periodic, infrequent closures of short duration (less than two-hours) must be coordinated with the affected businesses and residents. Prior to any closures of accesses, the Contractor shall give adjacent businesses and residences 48 hours notice and provide them with a schedule as to when they would have full access restored. Access to fire lane shall remain open at all times.

The Contractor shall publish and distribute a monthly update letter to all affected businesses and residences. The update letter shall be reviewed by the City's Project Manager prior to printing and distribution. The first letter shall be distributed the business day after the Pre-Construction Conference.

Contractor to coordinate limits of operations with the City Engineer or their Representative.

### **13. Additional Considerations**

Irrigation systems in landscaped areas disturbed by contractor's operations shall be restored to original functioning order.

### **14. Sawcutting**

No measurement or direct payment will be made for saw or wheel cutting, the cost being considered as included in the price of contract Items. Sawcutting shall be required at all pavement tie-in locations.

### **15. Material Safety Data Sheets**

Contractor to supply Material Safety Data Sheets to the City Engineer or their Representative for all items utilized on the project.

### **16. Permits**

Permitting Section 107.2 of the MAG Standard Specifications shall be deleted and the following inserted:

It shall be the responsibility of the Contractor to obtain all required permits for construction, dust control, erection of signs, traffic signals, etc.

City permits will be issued at no charge. Permits or fees required by outside regulatory agencies (Private Utility/Municipal/County/State/Federal/etc.), as needed for the work, will be paid for by the Contractor.

A special grading permit will be required when using spoils to fill private property. The expense for obtaining this permit shall be the responsibility of the Contractor. No grading will be allowed until a Grading and Drainage Plan has been approved by the City.

All haul routes for removals, excavation, and dirt moving must be approved by the City of Surprise prior to commencement of operations.

This project is subject to the Maricopa County Air Pollution Control Regulations. The Contractor shall comply with the provisions of Surprise MAG Supplemental Specification Subsection 107.2.2.

This project is subject to the National Pollutant Discharge Elimination System (NPDES) storm water requirements for construction sites under the Environmental Protection Agency (EPA) General Permit for Arizona.

## **17. Schedule of Labor and Equipment**

Contractor to provide a Schedule of Labor and Equipment Costs on a Time and Material Basis with their construction bid. This should include Project Manager, Project Engineer, Superintendent, etc. to the City Representative 2-weeks after notification of award.

## **18. Specialty Signs**

**General:** This is a separate contingent Item to be used in the event the City requests the Contractor to provide special construction signs under special circumstances as directed by the City.

**Authorization:** The use of this bid Item is only through the written direction of the City. The City will provide the language to be noted on the specialty signs, and the location for the installation of the signs.

**Signs:** Specialty signs shall be orange reflective background with black, construction lettering conforming to the City of Phoenix Barricade Manual. Each sign will have two signs posts, two flashers, two flags, and be ballasted with sandbags. The signs will generally be 18 to 24 square feet, depending on the need.

This is a contingency Item in which the total amount indicated on the schedule of bid Items will be adjusted accordingly by the City through a change order to reflect the actual amount used.

## **19. Record Drawings**

Contractor shall provide Record Drawings which shall clearly show all differences between the contract work as drawn and as installed for all work, as well as work added to the contract which is not shown on the Contract Drawings.

The Contractor shall maintain one set of Record Drawings at the job site. These shall be kept legible and shall be available for inspection at all times by the City. Show all changes in the contract work, or work added, on these Record Drawings in a contrasting color (red) including work changed by Addendum or Approved Change Order.

City shall review the Record Drawings on a monthly basis and shall be the sole judge of the acceptability of these drawings. Update Record Drawings showing all as-built construction shall accompany each progress payment submittal.

Upon completion of the project, submit final Record Drawings to the City for final review. Upon receiving approval by the City of the Record Drawings, deliver them together with one set of prints to the City's project manager. Final acceptance of the project will not be given until all such information is submitted.

## **20. General Requirements for Signing and Marking**

### **A. REFERENCES:**

In the addition to the reference documents identified in **PART A SCOPE OF WORK**, the following apply specifically to landscaping and irrigation work:

- State of Arizona, Department of Transportation, Traffic Control Manual for Highway Construction and Maintenance, most current edition.
- City of Phoenix Barricade Manual, most current edition.

## **21. General Requirements for Roadway Lighting**

### **A. REFERENCES:**

In the addition to the reference documents identified in **PART A SCOPE OF WORK**, the following apply specifically to landscaping and irrigation work:

- Arizona Public Service Company "2015 Electric Service Requirements Manual"

## **22. General Requirements for Landscaping and Irrigation**

### **A. REFERENCES:**

In the addition to the reference documents identified in **PART A SCOPE OF WORK**, the following apply specifically to landscaping and irrigation work:

- American Association of Nurserymen "American Standard for Nursery Stock," ANSI Z60.1.
- American Joint Committee on Horticultural Nomenclature "Standardized Plant Names", Second Edition, 1942.
- ANA: Arizona Nursery Association "Growers Committee Recommended Tree Specifications" July 1988.
- Arizona Landscape Contractor's Association Adopted Standards

## **B. Quality Assurance:**

**Licensed Landscape Contractor:** The Contractor shall either self-perform or utilize a single firm specializing in landscaping and irrigation system installation. The entity performing this work should be able to demonstrate a minimum of five years experience in the installation and maintenance of landscape materials in the southwest desert environment.

**Certified Pesticide Applicator:** Pesticides shall be applied by a person who is certified and currently registered by the Arizona Structural Pest Control Commission and working under the Contractor qualifying party hired for this project.

**Source Quality Control:** Ship landscape materials with certificates of inspection required by governmental authorities. Comply with regulations applicable to landscape materials. Obtain plant material from sources in Arizona. If materials are not obtainable, submit list of sources contacted.

Do not make substitutions. If specified landscape material is not obtainable, submit proof of non-availability to Owner's Representative, together with proposal for use of equivalent material with corresponding adjustment of contract price.

**Tree Measurements:** Measure using tree caliper at 1' above soil level and shrubs with branches and trunks in normal position in container. Do not prune to obtain required sizes. Measure main body of tree or shrub for height and spread dimensions. Do not measure from branch or root tip-to-tip.

**Inspection:** Owner's Representative will inspect plant material either at place of growth, at nursery or at site before planting, for compliance with requirements for genus, species, variety, size and quality. Inspections other than those on-site identify character and quality of plants specified and do not constitute final acceptance of plant material. Owner's Representative retains right to further inspect trees and shrubs for size and condition of balls and root systems, insects, injuries and latent defects and to reject unsatisfactory or defective material at any time during progress of work. Remove rejected trees or shrubs immediately from project site and provide documentation for replacement material. Do not remove species identification tags from plant materials prior to their being approved by Owner's Representative.

### **C. Delivery, Storage, and Handling:**

**Packaged Materials:** Deliver packaged materials in containers showing weight, analysis and name of manufacturer. Protect materials from deterioration during delivery and storage at site.

Protect products and materials from weather or other conditions that would damage or impair effectiveness.

**Backfill Mix and Amendments:** All materials shall be delivered by the local supplier of the mix and include lab test results for the mix to be used on this project. Lab test results shall include date of test and batch number for the material delivered to the site.

**Trees and Shrubs:** Do not prune prior to delivery unless approved by the Owner's Representative. Do not bend or tie plants in such manner as to damage bark, break branches or destroy natural shape. Provide protective covering for entire plant during delivery. Provide adequate protection for root systems and balls from drying winds and sun.

Do not remove container-grown stock from containers until planting time.

The Contractor is responsible to arrange for storage of plant materials if necessary.

### **D. Site Conditions:**

Keep all planting areas free of construction debris and toxic material and graded to condition permitting landscape construction. Compact trenches, foundation backfill or other filled excavations before planting. Loosen all existing planting areas and areas that have been previously paved which will become planting areas, parking areas and other excessively compacted earth in all existing or new planting areas to 85% maximum. Commencement of work indicates acceptance of job conditions. Remove all rock or material not conducive to plant growth that exceeds 1 ½" diameter.

Cooperate with other contractors working in and adjacent to landscape work areas.

Provide potable water to complete planting and maintenance activities. Water obtained off site is incidental to work. No separate payment shall be made.

Mark and maintain clearance along routes designated for public vehicular and pedestrian travel. Coordinate pedestrian and vehicular access with all other contractors and in accordance with City of Surprise requirements.

### **E. Warranty**

Warrant equipment, materials and workmanship against defects and defective workmanship for one year from date of final acceptance. Provide manufacturer's warranty information on all equipment. Repair settling of backfilled trenches that may occur during warranty period at no

expense to owner, including complete restoration of damaged property, replacement or addition of decomposed granite, plants, or other items damaged.

## **F. Maintenance**

Furnish the following maintenance items to Owner before Final Acceptance.

- Two sets of special tools required for removing, disassembling and adjusting each type of valve supplied on project.
- Two 3-foot valve keys for operation of mainline gate valves.
- Four keys for each controller cabinet.
- Submit Record/As-Built Drawings for review by the owner's representative and owner.
- Submit controller charts after Record Drawings have been reviewed by the owner's representative.
- Provide binder with all equipment records, operations manuals, source of purchase with completed warranty's and manufacturer's representative contact information including name, phone, address and email address, all contained in one binder with project information on cover and on binder with project name, numbers, date of completion and Contractor contact information. Include documentation for all pressure readings in close out binder.
- Provide two controller charts for each controller installed. Chart must be legible and sized to fit inside and attach to controller cabinet door. Submit for review and approval to the Owner's representative prior to installation. Identify area of coverage of each remote control valve, using different pastel color for entire area of coverage or other clearly legible method. Following review of charts by owner's representative, laminate with heavy-duty laminate. Complete charts for review before final review of irrigation system. Submit operating instructions including start-up for controller.

## **G. Training**

Provide maximum two hours training in operation of irrigation system to owner's representative and maintenance personnel before final acceptance.

## **PART C: GENERAL BID ITEMS**

### **General**

The following bid items are numbered to correspond to the Litchfield Road Schedule of Values and Cactus Road Schedule of Values (collectively referred to as the Bid Schedule) and are included to explain details of work not covered by applicable Standard Specifications and to relate work and pay quantities to the specific Bid Item.

All work and materials shall conform to the Maricopa Association of Governments "Uniform Standard Specifications for Public Works Construction", 2015 Edition (MAG Standard Specifications), except as modified in these Special Provisions or on the Contract Plans.

## **Item 1 -- Traffic Control**

**Description:** Traffic control shall conform to Section 401 MCDOT Supplement to the MAG Standard Specifications except as modified as follows:

**Description:** MAG Standard Specifications shall be modified to include:

It shall be the responsibility of the contractor to develop and implement a traffic control plan for the project. The Contractor shall use the current City of Surprise "Temporary Work Zone Traffic Management Policy" available on the City's website. If there is a discrepancy between the following traffic specifications and the City of Surprise "Temporary Work Zone Traffic Management Policy" the City policy shall govern. Part IV of the "Manual On Uniform Traffic Control Devices For Streets And Highways" (U.S. Department of Transportation, Federal Highway Division) and all revisions thereto, the Traffic Manual from the City of Phoenix and all revisions thereto, shall serve as a guideline in Contractor's application of traffic control.

It shall be the Contractor's responsibility to provide, erect and maintain and remove after completion of the work all necessary signs, barricades, temporary traffic signals, barriers, berms, lights, high level warning devices, delineators, and any other required devices, uniformed officers, and flagman, necessary to properly mark and control the construction area for the safe and efficient movement of traffic. Temporary traffic control devices shall be installed prior to the start of any work.

It shall be the Contractor's responsibility to construct the required bypass lanes in order to make the road available to traffic. The City of Surprise's approval of the Contractor's traffic control method shall not relieve the Contractor of its responsibility to protect the work, Contractor's personnel, or the general public.

The Contractor must notify the Traffic Engineering Division at phone (623) 222-3400 of all traffic restrictions of City roads and streets. The notification may be by FAX submittal at phone number (623) 222-3403. The Traffic Control Plans (TCP) and notification must be submitted for review at least two working days (48 hours) prior to start of construction. Form TE-1 shall be completed in full and submitted with the TCP to begin review. Construction is not authorized to proceed without the City's approval of the TCP and concurrence that construction can precede with minimum public and traffic impact. Once Form TE-1 is approved and returned, any changes to the TCP or specific information approved in a previous submittal shall require a re-submittal of Form TE-1 and the TCP.

The Contractor shall provide and maintain all necessary signs, barricades and centerline vertical panels for five (5) working days beyond the concrete cure time or acceptance of the project by the Engineer, whichever period is greater.

**Off Duty Uniform Police Officer:** of the MAG Standard Specifications shall be modified as follows:

A uniformed City of Surprise police officer shall be present when construction activities take place within three hundred (300) feet of a signalized intersection or if required by the City



Engineer or their representative. Contractors must arrange for a police officer at least five (5) calendar days in advance of planned construction activities by contacting the City of Surprise police department at (623) 222-4264. Contractor shall bear the cost of the Surprise police officer at the normal hourly rate for that officer. If a City of Surprise police officer is unable to be scheduled for the days desired by the Contractor, the City shall notify the Contractor at least 48 hours in advance. In that case, the Contractor will be allowed to hire a uniformed off-duty sworn peace officer from another agency, preferably the Maricopa County Sheriff's Department.

**Police Department Notification:** On all major streets, the Engineering Department and Surprise Police Department shall be provided with the name and phone number of the person responsible for 24-hour maintenance of traffic control devices.

**Traffic Control Plan:** of the MCDOT Supplement to the MAG Uniform Standard Specification is revised to read:

The Contractor shall submit a traffic control plan for approval, showing placement of all traffic control devices, including all conflicting signs to be covered/removed or relocated, or other features that may conflict with the placement of temporary signage. This plan shall be professionally drawn on a 24" x 36" reproducible medium, and shall be submitted to the Engineer at the pre-construction meeting unless otherwise directed.

The purpose of the Traffic Control Plan (TCP) is to: 1) enable the City to monitor street restrictions and spot check barricading and safety precautions and their impacts on street operations and 2) enables the City to provide advance notice to those who may be adversely affected by the temporary restrictions.

The contractor must fill out the Traffic Control Plan Application form which can be found at [www.Surpriseaz.com](http://www.Surpriseaz.com), Engineering Department, Development, Development Engineering Download Documents. A fully executed Traffic Control Plan Submittal Form must accompany each TCP submitted to the Engineering Department for review. The Traffic Control Plan (TCP) must be site/work specific and shall be submitted 72 hours in advance.

The contractor and/or subcontractor shall provide and maintain all necessary temporary traffic control devices as indicated on the City approved TCP. The City of Surprise will not allow devices that, in their judgment fall into the "unacceptable" category. Should the City determine that the traffic control devices fall into the "unacceptable" category the contractor shall be immediately informed by the City and take necessary steps to bring the traffic control devices into compliance with the approved TCP. Failure of the contractor to take such action will result in the City issuing a Cease Work Order, the Contractor shall secure the work zone and remove all traffic control devices from the roadway immediately, and the contractor could be subject to penalty per City of Surprise Code Section 23-8, Ordinance #01-181 Dangerous Construction Practices.

Construction shall not commence or proceed without an approved Traffic Control Plan. At the pre-construction conference, the Contractor shall submit for review his plan for the sequence of construction and the planned road closure signing for construction and the traffic flow when the

road is opened. A Traffic Control Plan (TCP) covering the signing and staging shall be submitted and approved prior to the start of each stage of construction. The Traffic Control Plans shall address all construction staging and special provisions requirements.

The Traffic control devices shall be set in place in accordance with the approved traffic control plan and maintained by a traffic control technician certified by a recognized organization such as ATTSA or IMSA or other organization(s) recognized by the City of Surprise.

The Contractor shall provide complete and accurate 24-hour emergency contact information to the City.

## **TRAFFIC REGULATIONS**

- A. The following shall be considered major streets:
  - Litchfield Road
  - Cactus Road
- B. All traffic and/or traffic control devices on this project shall be provided, maintained, controlled, and/or removed as specified in the City of Phoenix Traffic Barricade Manual, 1998 edition, and applicable City of Surprise Ordinances.
- C. Permission to restrict City streets, sidewalks and alleys (Street closure permits) shall be requested as specified in Chapter 3 of the Traffic Barricade Manual, 1998 edition.
- D. Unless otherwise provided for in the following “Special Traffic Regulations”, all traffic on this project shall be regulated as specified in Chapter 4 of the Traffic Barricade Manual, 1998 edition.
- E. No deviation to the “Special Traffic Regulations” will be allowed or implemented unless submitted to the Engineer for review and approval two (2) weeks prior to proposed work.

At signalized intersections during off-peak traffic hours, the minimum number of lanes shall be two lanes (one in each direction) on streets with four lanes or less, and three lanes on streets with five or more lanes. Lane restrictions allowed in the traffic control plans for specific work locations are the exceptions to this criterion.

Channelization, including “KEEP RIGHT” signs, shall be provided whenever traffic is moved across the street center line, the existing center line is removed, or opposing traffic is maintained in other than the normal traffic lanes.

All temporary traffic control devices shall be ballasted with sandbags or other approved ballast.

For construction or trenching diversions that require movement of traffic from the normal through lanes, temporary bypasses shall be utilized only during nighttime hours and the normal traffic shall be restored during daytime hours.

For trenching diversions that move traffic from normal lanes, temporary bypasses shall be utilized during daylight hours only and traffic shall be restored to their normal lanes over night if possible. The use of traffic plates and temporary pavement shall be used. If conditions warrant, the City Engineer or their representative may grant exceptions. In addition to barricading and signing, portable barriers and/or sand berms shall be utilized for overnight diversions.

Contractor shall maintain or relocate all existing signal indications, warning signs, STOP, YIELD, and street name signs so they are clean and in full view of the intended traffic at all times. Portable signs shall be used to supplement blocked or removed signs. Contractor shall reset all disturbed signs to permanent locations when construction is completed. Unnecessary or surplus signs shall be removed and delivered to the City of Surprise. Contractor is responsible for the cost of replacing lost or damaged traffic warning signs.

If existing signal equipment is damaged as a result of Contractor's construction activity, Contractor shall notify the City of Surprise, in order to facilitate the prompt restoration of the traffic signal operation. All costs associated with the repair of damaged traffic signals, caused by Contractor's construction activity, shall be borne by Contractor.

Contractor shall erect portable jersey barriers when deemed necessary by the Engineer. The approach ends of all portable barriers shall be flared a minimum of ten feet away from the travel lane in order to lessen the severity of an accidental impact.

Rope, flagging, fencing and woven plastic tape shall be used between barricades and channeling devices to provide additional safety.

Traffic shall be maintained on pavement at all times utilizing 11-foot wide lanes.

All advance road closed warning signs shall use distance advisory criteria and be mounted on channels driven into the ground. All conflicting speed limit signs shall be covered.

Contractor shall provide and maintain all necessary signs, barricades and centerline vertical panels until the road is striped.

At the time of the pre-construction conference, the Contractor shall designate an employee, other than the Project Superintendent, who is well qualified and experienced in construction traffic control and safety, to be available on the project site during all periods of construction to set up, maintain and coordinate safe barricading whenever construction restricts traffic. This individual shall be authorized to receive and fulfill instructions from the Engineer and shall supervise and direct the work. Instructions and information given by the Engineer to this individual shall be considered as having been given to the Contractor.

**Public Safety:** If for public safety, the City needs to install traffic barriers due to non-response by the Contractor, the Contractor shall be charged for all time, material, and equipment used. Once permit has expired the Contractor and/or Barricade Company has 48 hours to remove all traffic control devices from City of Surprise right-of-way. Failure to comply will result with the Contractor or Barricade Company being charged for all time, material, and equipment used to

remove the traffic control devices from the right-of-way. Should this be a recurring event the City reserves the right to deny future traffic control permits.

**Portable Concrete Barriers and Sand Berms:** Portable Concrete Barriers shall be required when construction hazards warrant or when directed by the City Engineer or their representative. The traffic approach ends of all portable barriers shall be protected from vehicle impact by flaring the ends away from the traveled way at a rate consistent with the following table or by the use of approved attenuation devices:

<b>Taper</b>	<b>Posted Speed</b>
8:1	35 MPH
9:1	40 MPH
10:1	45 MPH
11:1	50 MPH

When a construction hazard warrants and or when required by the City Engineer or his representative, the Contractor shall install an approved impact attenuation device or a deceleration sand berm (washed sand approximately five feet high) in the blocked traffic path to prevent errant vehicles from entering the active work site.

**Trench Plating:** To cover hazards and restore normal traffic flow during non-work times, the use of traffic plates may be required. Use of plates shall be short time periods, not to exceed three workdays. Extended use may be granted with the approval of the City Engineer or their representative.

**Advance Traffic Control (Notification and Detour Routes):** The Contractor shall provide Variable Message Signs (VMS's) and signed detour routes according to the schematic diagrams included in the Appendix. The VMS's and detours shall be maintained 24 hours per day. Detours shall be provided with trailblazer signs (MUTCD M4-8) at least every half mile.

The Contractor shall prepare Traffic Control Plans for VMS placement and detour signing as required in Section II.A., and those plans shall be approved prior to installation of the advance traffic control.

**Pedestrian Access Requirements:** The Contractor shall ensure that all sidewalks on this project remain open and safely usable at all times. Such measures as backfilling or ramping to existing sidewalks, or providing alternate sidewalk areas adjacent to existing sidewalks may be used. In high pedestrian use areas, the Engineer may request temporary hard-surface walkways, such as plywood sheets to be installed at no additional cost to the City.

**School Access Requirements:** The Contractor shall provide clean and safe school zones, crosswalks, and walkways for students attending nearby schools during all hours of school use. This may require backfilling trenches, temporary pavement, shoring, plating, or pedestrian bridges with handrails across open trenches.

In addition to school zones and crosswalks, the Contractor shall maintain accessibility to all school bus routes during all hours of school use. The Contractor shall notify the school principal(s) and the school Transportation Director at least seven (7) days prior to any restrictions, and shall restore access as soon as possible.

**Fire Department Requirements:** The Contractor shall maintain Fire Department Access at all times to project site and adjacent property homes and businesses.

**Sanitation Pick-up:** The Contractor shall provide sanitation pick-up for affected residents by relocating trash containers, or by providing alternative measures acceptable to the Sanitation Division of the City Public Works Department.

**Special Events:** There may be special events scheduled to take place during the construction of this project. The Contractor shall coordinate these events with the construction schedule.

**Special Sign Requirements:** The Contractor shall provide, erect, and maintain advance notification; informational; and directional access signs (for businesses, churches, hospitals, etc.) that may be required by the Engineer. The cost shall be included in the bid Item for Traffic Control Devices.

**Bus Stops:** The Contractor shall maintain all existing bus stop locations on this project in a safe manner, or provide alternate bus stop locations as required by the Engineer.

**Flagging of Traffic:** No flagging of traffic will be permitted during the peak traffic hours of 6:00 a.m. to 8:30 a.m. and 3:30 p.m. to 7:00 p.m. weekdays. If construction requires, intermittent flagging will be allowed to facilitate access for heavy construction equipment.

**Safety Fencing Requirement for Trenches and Excavations:** The Contractor shall provide safety construction fencing around all open trenches and excavations during all non-working hours.

The Contractor shall provide for the safety and welfare of the general public by adequately fencing all excavations and trenches that are permitted by the Engineer to remain open when construction is not in progress.

Fencing shall be securely anchored to approved steel posts located six (6) feet on centers, having a minimum height of six (6) feet, and shall consist of wire mesh fabric of sufficient weight and rigidity to adequately span a maximum supporting post separation of six (6) feet.

The fencing, when installed around the periphery of excavations and trenches, shall form an effective barrier against intrusion by the general public into areas of construction. The Contractor, at all times when construction is not in progress, shall be responsible for maintaining the fencing in good repair, and upon notification by the Engineer, shall take immediate action to rectify any deficiency. Prior to the start of any excavating or trenching required for the execution of the proposed work, the Contractor shall submit to the Engineer for approval, detailed plans showing types of materials and methods of fabrication for the protective fencing.

There will be no separate measurement or payment for furnishing, installing, or maintaining protective fencing. The cost shall be considered incidental to the cost of the pipe and/or structures.

**Existing Traffic Signal and Signing Devices:** The Contractor shall maintain and/or relocate all existing signal indications, warning signs, stop, yield and street name signs; erect, clean and in full view of the intended traffic at all times. Portable signs should be used to supplement blocked or removed signs. Signs in conflict with traffic control signs shall be covered by City approved methods.

The Contractor is responsible for the cost of replacing lost signs and for the permanent repair or replacement of damaged signal equipment and loop detectors (except those shown to be removed on the plans).

Should damage occur to existing signal equipment, the Contractor shall notify the City Traffic Signals Technician at 623-222-3300 immediately, to make the necessary repairs to restore traffic signal operation.

The Contractor will reset all disturbed signs to permanent locations when construction is completed. The Contractor shall notify the City Technician when the work is complete. All necessary temporary signs shall remain in place until permanent signs are reset.

**Temporary Traffic Control:**

- A. Traffic Control Plan shall be submitted and approved prior to start of work.
- B. Signs, barricades and channeling devices shall be:
  - a) Installed prior to the start of any work;
  - b) Properly maintained and operated when restrictions exist;
  - c) Kept clean and fresh appearing at all times;
  - d) Kept in place only as long as needed;
  - e) Removed from traveled way during non-working hours when restriction no longer exists;
  - f) Removed from the right-of-way within 48 hours of completing work;
  - g) In accordance with the MUTCD standards.

The “SPEED LIMIT 25” (R2-1) sign is used where the existing pavement has been removed, traffic is being maintained on temporary detour or diversion roads, unpaved shoulders, on traffic lanes that are severely restricted, or where the City Engineer or their representative deems necessary. Channeling, including “KEEP RIGHT” (R4-7A) signs, shall be provided whenever traffic is moved across the street center line, the existing center line is obliterated, or opposing traffic is maintained in other than the normal traffic lanes.

All temporary traffic control devices shall be ballasted with sandbags or other approved ballast when necessary. The use of rocks, concrete or asphalt chunks, concrete blocks, etc., as ballast is prohibited. Ballast shall not be placed on top of any traffic control devices.

Flagging, orange fencing, and/or woven plastic tape may be required at open trenches/excavations and/or used between lighted barricades and channeling devices in construction areas to provide additional guidance and security. "OPEN TRENCH" (W8-10A) signs shall be installed on all open trenches.

Channeling devices are not intended to be physical barriers. Vertical panels shall be used unless otherwise approved by the City Engineer or their representative.

It shall be the Contractor responsibility to inspect all traffic control devices at least once during each work day and immediately after wind or rain storm. Any traffic control device not properly located shall be reinstalled immediately. The Contractor shall notify the City no later than 1 hour before arrival for set up or take down of traffic control devices. In the event of a full road closure or nighttime restriction, the Contractor shall service the traffic control devices every night to ensure a safe traffic control plan and notify the City through FAX at (623) 222-3403 no later than 8 a.m. the next morning verifying service to the traffic control devices has been performed. The FAX shall include the name of the person performing the service, time of visit, and permit it applies to.

Service calls shall be answered within 2 hours from the original contact. A FAX shall be produced to provide the name of person performing the service, time of completion and permit it applies to.

**Temporary Pavement Markings:** Temporary pavement markings may be used to guide traffic on pavement in construction and maintenance areas. Where temporary markings are required at other than final locations, removable temporary markings or traffic control devices shall be used on pavement that shall remain. Temporary markings shall be removed and permanent markings placed upon project completion.

Centerline markings shall be two, 3-inch wide yellow lines with a 3-inch space between them. Lane line markings shall be 4 inches wide, placed with a 10 lineal feet line and 30 lineal feet of space to form the lane line pattern. Other markings for barriers lines, edge lines, crosswalks and school zones, may be necessary to complete temporary marking installations. Edge lines shall be 4 inch wide continuous white lines. Barrier lines for mandatory turn lanes, pavement edge tapers, and lane transitions shall be 10 inch wide continuous white lines.

**Short Term Restriction and Service Vehicles:** When service or maintenance vehicles must proceed at a slow pace or stop in the road line or engage in slow moving work on the road shoulders for brief period, they will not have to set up advance warning but they shall display an operating high level warning light system in conjunction with hazard warning flashers.

Striping or sweeping vehicles shall set up warning signs at the beginning and end of their work zone and be equipped with a spray bar. Striping and sweeping operations shall be accomplished in such a manner as to not obstruct traffic.

When service vehicles must travel slowly or stop for brief periods, they *shall* display one of the following operating high level warning light systems.

**Two Rotating Flasher or Strobe Light High Level Warning Light Devices:** These devices must provide 360 degree visibility. They may be used in combination and incorporated into a “light bar” for added visibility.

**Advance Warning Panel:** Arrow panels shall be used in combination with rotating flashers or strobe lights to provide 360 degree visibility.

Flashing lights and arrow panels shall be located on service vehicles so that they remain in full view, front, and rear, at all times and are not obscured by dump beds, mounted equipment, trailers, or work activity. Minimum mounting height shall be 8’-0”.

When it is necessary for service vehicles to stop for brief periods, it shall be standard operating procedure to display the high level operating system and the vehicles four-way hazard warning flashers. Additionally, a short taper of cones (minimum of 50’ and six 28” cones) at the rear of the vehicle shall be used.

Vehicles meeting these requirements shall follow these time allowances.

Up to 15 minutes for vehicles equipped with two flashing or strobe high level warning devices and a short taper of 28” cones (minimum of 50’ and six cones) at the rear of the vehicle.

Up to 45 minutes for vehicles equipped with advance warning arrow panels and a short taper of 28” cones (minimum of 50’ and six cones) at the rear of the vehicle.

Flashing lights and arrow panels shall be located on service vehicles so that they are visible from all directions and are not obscured by truck beds, mounted equipment or work activities.

**Personnel / Detour Time:** All traffic control technicians and flaggers shall be properly trained and certified by a recognized by either the International Municipal Signal Association (IMSA) or American Traffic Safety Services Association (ATSSA) and shall carry proof of training with them at all times. Flaggers shall use “STOP / SLOW” paddles to control traffic; orange construction flags are not permitted.

Any detour, other than on paved City streets, intended to be in place 5 days or longer shall be accomplished by means of temporary pavement with a design life to complete the work.

**Failure to Comply:** Failure to abide by these requirements may result in a cease work order for all construction activities on site, and repeated documented failure by the Barricade Company by these requirements may result in a moratorium of services, where the Barricade Company is



suspended from working within the City for 30 calendar days. Documentation will include inspector's daily notes, phone logs, pictures, faxes received or not received from the Barricade Company, and any other documentation supportive of the failure to abide.

**Measurement:** of the MCDOT Supplement to the MAG Uniform Standard Specification is revised to read:

No separate measurement will be made for traffic control devices, flagmen, pilot cars (with drivers) or any other equipment or personnel required to provide appropriate traffic control for this project.

**Payment:** of the MCDOT Supplement to the MAG Uniform Standard Specification is revised to read:

Payment for Traffic Control shall be made at the lump sum bid price in equal payments distributed over the entire duration of the project. Payment for Traffic Control shall be full compensation for all labor, pilot cars, off duty police officers, flagmen, materials, traffic control devices, and miscellaneous incidental items necessary to complete the work.

## **Item 2 -- AZPDES Plan and Notification**

**Description:** The work under this item shall consist of preparing and providing an Arizona Pollutant Discharge Elimination System (AZPDES) and Notification in accordance with the requirements of the Arizona Department of Environmental Quality's (ADEQ) Construction General Permit.

The steps the Contractor shall take include:

- Submission of a Notice of Intent (NOI) that includes general information and location to closest waterbody;
- The development and implementation of a Storm Water Pollution Prevention Plan (SWPPP) with appropriate BMPs to minimize the discharge of pollutants from the site. The operator (Contractor) must submit the SWPPP along with the NOI.
- Submission of a Notice of Termination (NOT) when final stabilization of the site has been achieved as defined in the CGP or when another operator has assumed control of the site.

The Contractor shall provide copies of all plans and notifications to the Engineer.

**Measurement:** Measurement for AZPDES Plan and Notification shall be on a lump sum basis.

**Payment:** The accepted quantities for AZPDES Plan and Notification measured as provided above will be paid for at the contract unit price, which price will be full compensation for the work complete in place, as shown on the plans and as specified in the specifications.

### **Item 3 -- Construction Surveying**

**Description:** Construction Stakes, Lines, and Grades of Section 105.8 of the MAG Standard Specification text shall be deleted and the following inserted:

**General:** If required, the Contractor may contact Premier Engineering (480-829-6000) for clarification related to survey control information shown on the plans.

The Contractor shall furnish all materials, personnel, and equipment necessary to perform all surveying, staking, laying out of control lines and verifications of the accuracy of all existing control points which are re-delineated in the Contract Documents. The work shall be done under the direction of a Registered Land Surveyor licensed to practice in the State of Arizona.

**Field Books:** The Contractor shall furnish field books to be used for recording survey data and field notes. These books shall be available for inspection by the City at any time and shall become the property of the City upon completion of the work.

**Construction Stakes:** The Contractor shall set construction stakes and marks establishing lines and grades for road work, curbs, gutters, sidewalks, structures, buildings, centerlines for utilities and necessary appurtenances, and other work as indicated in the Contract Documents and shall be responsible for their conformance with the plans and specifications.

The stakes shall be established in accordance with the following guidelines which represent the minimum standard and the Contractor shall provide additional stakes and controls necessary to perform the work. The Contractor shall be held responsible for the preservation of all stakes and marks and will replace, at no additional cost to the City, any construction stakes or marks which have been carelessly or willfully destroyed by any party.

#### A. Curb and Gutter

1. Cut/fill stakes for rough grade shall be set at one hundred (100) foot intervals with cuts to the top of curb.
2. Finish grade stakes shall be set to curb grade at twenty five (25) foot intervals, at grade brakes, angle points, transitions, returns, driveways, alley entrances, sidewalk ramps and other curb control points. The stakes shall be tacked for line on a two (2) foot offset to the back of curb.
3. Face of curb forms shall be checked for grade at flow line prior to placing concrete where longitudinal grades are one tenth of one percent (0.10%) percent or less.

#### B. Roadway:

1. Subgrade stakes shall be set to subgrade elevation at fifty (50) foot intervals on straight sections, twenty-five (25) foot intervals through vertical curves, on horizontal curves with

radius of six hundred (600) feet, or less, and/or slopes of less than four tenths of one percent (0.4%), the beginning and end of horizontal and vertical curves and grade breaks.

2. Stakes for base course shall be set to elevation at thirty three (33) foot intervals on straight sections, twenty five (25) foot on horizontal curves with radius of six hundred (600) feet, or less, and/or slopes of less than four tenths of one percent (0.4%), the beginning and end of horizontal and vertical curves and at grade breaks.
3. Pavement edges shall be controlled by utilizing a wire control mechanism. Stakes shall be set to finished elevation at thirty three (33) foot intervals on straight sections, twenty five (25) foot intervals on curves with radius of six hundred (600) feet, or less, and/or slopes of less than four tenths of one percent (0.4%), the beginning and end of horizontal and vertical curves and grade breaks.

C. Roadway Lighting:

1. Stakes shall be set at the locations of all new pull boxes, pole foundations, and cabinet foundations to determine any potential conflicts with existing underground and overhead utilities. The Contractor shall then arrange for the City's inspector to review and approve all locations prior to any excavation. The City inspector may modify the locations of any equipment as required at no additional cost to the City.

**Inspection and Acceptance of Work:** The City reserves the right to make inspections and random check of any portion of the staking and layout work. If, in the City's opinion, the work is not being performed in a manner that will assure proper control and accuracy of the work, the City will order any or all of the staking and layout work redone at no additional cost.

**Measurement and Payment:** Construction surveying will be measured as a single complete Item of work and paid at the lump sum price indicated on the Bid Schedule, which amount shall be considered full compensation for the work as described herein and required to provide all necessary survey stakes and control.

**Item 4 -- Mobilization / Demobilization**

**Description:** Mobilization/Demobilization shall be per Section 109 of the MCDOT Supplement to MAG Standard Specifications.

**Measurement and Payment:** Payment for Mobilization/Demobilization will be paid at the unit price of lump sum as specified in the Bid Schedule and shall include all labor and materials.

The City will not compensate the Contractor for any additional Mobilization/Demobilization or extended overhead cost resulting from weather delays.

**Item 5 -- LINE ITEM NOT APPLICABLE**

## **Item 6 -- Record Drawings**

**General:** The record drawings work shall conform to the City of Phoenix Survey Section Standard Requirements For Staking, As-Built, Quantity Calculations dated January 1, 1980.

The City of Surprise will provide the Contractor with the original mylar plan sheets for use in preparing final as-builts. Information shall be shown on these mylars in **red opaque ink**, depicting the constructed dimensions, elevations, grades, and materials including locations of existing underground utilities found during construction.

The Contractor shall exercise extreme care in handling the originals and will return them to the City in like condition. In the event the originals are damaged or determined by the City to be unacceptable, the Contractor shall replace the originals by contacting the Design Engineer of record and have new drawings produced. All costs incurred as the result of replacing the originals shall be borne by the Contractor. The City will be the sole judge in determining whether the as-builts are acceptable.

The as-built drawings shall be certified by an Arizona Registered Land Surveyor. As-built drawings shall be delivered to the City of Surprise within thirty (30) days from the date of final inspection and acceptance by the City of the work completed under this contract. Final payment will be made only after submitted as-builts are accepted by the City.

**Measurement and Payment:** As-Builts will be measured as a single complete item of work and paid at the lump sum price indicated on the Bid Schedule, which amount shall be considered full compensation for the work as described herein. Payment for work under this bid item will be made when the City accepts the final as-built mylars. Should the Contractor fail to submit acceptable as-builts within the maximum 30 calendar day period noted above, the City will execute a deduct change order for 10% of the As-Built bid item total from the contract (or \$2,500.00, whichever is greater) for every 5 working day period that the Contractor fails to provide acceptable as-builts (not including City review time). If the Contractor fails to submit acceptable as-builts after the 3rd submittal, the City will deduct 50% from the As-Built bid item total from the contract (or \$10,000.00, whichever is greater) and execute a final change order noting the City's justification for penalizing the Contractor for unacceptable as-built preparation.

## **PART D: CIVIL BID ITEMS**

### **General**

The following bid items are numbered to correspond to the Litchfield Road Schedule of Values and Cactus Road Schedule of Values (collectively referred to as the Bid Schedule) and are included to explain details of work not covered by applicable Standard Specifications and to relate work and pay quantities to the specific Bid Item.

Any items of work shown on the plans but not covered by bid items, as shown on the Bid Schedule, shall be considered incidental to the project.

All work and materials shall conform to the Maricopa Association of Governments “Uniform Standard Specifications for Public Works Construction”, 2015 Edition (MAG Standard Specifications), except as modified in these Special Provisions or on the Contract Plans.

**Item 7 -- Roadway Grading (Roadway Excavation)**

**Item 8 -- Earthwork for Retention Basins**

**Description:** The work under these items will consist of earthwork within the right-of-way and drainage easement including excavating, sloping, rounding tops and ends of excavations, hauling, loading, depositing, conditioning, spreading, and compacting the material complete in place and disposal of surplus material.

**Materials:** Materials shall be per MAG Standard Specifications Part 200.

**Construction Requirements:** The Contractor shall haul off and dispose of all surplus material in accordance with federal, state, and local regulations.

All embankments shall be compacted to 95 percent of the ASTM D698 maximum dry density in each lift.

All embankments outside the curb line shall be native soils in which all materials larger than one inch in diameter has been removed. It cannot contain any non-organic materials such as pavement or concrete remnants. If imported, the material shall conform to MAG Section 210. Clean fill soil is intended for those areas outside the curb line where future landscaping and irrigation will be installed.

**Measurement and Payment:** Measurement and payment for roadway excavation and retention basin excavation shall be measured on a cubic yard basis and shall include excavating, sloping, rounding tops and ends of excavations, loading, depositing, conditioning, spreading, and compacting the material complete in place and disposal of surplus material. Finished grading, excavation, and export of median on-site soil shall be paid by separate Bid Items.

**Item 9 -- Dumped Angular Riprap, D50= 6"**

**Description:** The work under this item is for furnishing and placing stone riprap including excavation, bedding, backfill, and geosynthetic fabric. The depth and type of riprap shall be as shown on the plans. Aggregate shall be color-matched with adjacent landscape aggregate.

**Method:** Conform to MAG Section 220.

**Measurement and Payment:** Payment for Dumped Angular Riprap (D50=6") will be paid at the unit price of square yard as specified in the Bid Schedule and shall include all labor, materials, and work associated with installing riprap as shown on the plans.

**Item 10 -- Subgrade Preparation**

**Description:** This item is for all excavation, fill, grading, and compaction to prepare the subgrade and graded shoulders in accordance with MAG Sections 205 and 301.

**Measurement and Payment:** Measurement and payment for subgrade preparation will be per MAG Section 301. No separate measurement or additional payment will be made for grading and compacting the shoulders and side slopes outside the edge of pavement. This work will be considered as incidental and included in the price bid for this item.

**Item 11 -- Aggregate Base Course, 9" Thick**

**Description:** The work under this item is for the installation of aggregate base course, including materials, excavation, backfill, and compacting the material to 100% compaction as shown on the plans.

**Method:** Conform to MAG Standard Specification 310 except as modified herein.

**Measurement and Payment:** Measurement for Aggregate Base Course, 9" Thick shall be on a square yard basis. The accepted quantities for Aggregate Base Course measured as provided above will be paid for at the contract unit price, which price will be full compensation for the work complete in place, as shown on the plans and as specified in the specifications.

**Item 12 -- Asphalt Milling, 1-1/2" Thick**

**Description:** The work under this item is for the milling and removal of existing asphaltic concrete pavement, including base course if necessary.

**Method:** Conform to MAG Standard Specifications 317 except as modified herein.

**Measurement and Payment:** Payment for milling and removing asphaltic concrete pavement, including base course if necessary, shall be at the unit price per square yard specified in the Bid Schedule and shall include all labor and materials required to remove and dispose of the asphaltic concrete pavement, including base course if necessary, to a location off of the project site.

**Item 13 -- Asphalt Concrete, 3" Thick Type 'C' 3/4**

**Description:** The work under this item is for the placement of new asphaltic concrete pavement surface course, including materials, excavation, backfill, and compacting as shown on the plans.

**Method:** Conform to MAG Standard Specification 321 except as supplemented or modified herein.

**Materials:** Materials and Manufacture: Text is deleted and the following inserted:

All asphaltic concrete used in the project shall be on the City of Phoenix approved mixes. Aggregate base course shall conform to Section 702 of the MAG Standard Specifications.

Pavement mix shall be comprised of a surface course of C-3/4" mix.

**Asphalt Base and Surface Course (Supplement):** The surface course shall not be placed until all landscaping has been completed and accepted and all work that might result in earth being deposited on the finished road has been completed.

**Measurement:** Text in Section 321.8 shall be deleted and the following inserted:

Measurement shall be made to the nearest square yard for asphalt pavement (3" depth) as indicated in the Bid Schedule, and within the designated limits of paving shown on the plans, which shall include the thickened edge as shown on the plans and any tack coat per MAG Standard Specification 329.

**Payment:** Text in Section 321.9 shall be deleted and the following inserted:

Asphalt Pavement (3" Depth) will be paid at the unit price bid per square yard as indicated on the Bid Schedule, which amount will be considered full compensation for the work complete and in place including the thickened edge and any specified tack and/or prime coats. Upon completion of the base course of pavement, the Contractor shall be eligible to receive 85% of the unit cost, with the remaining 15% paid when the surface course is completed.

**Replace Damaged Pavement:** The Contractor will be responsible to replace, at their cost, any and all damaged pavement outside the pay limits, due to their activities on the project. This includes, but is not limited to, the replacement of newly cracked pavement, the replacement of existing cracked pavement where the cracks have been widened, the replacement of any chipped or missing pieces of pavement, and the replacement of any deformed pavement. The pavement will be sawcut at right angles to the roadway, to encompass the replacement areas.

**Item 14 -- Asphalt Concrete, 2" Thick Type 'D' 1/2**

**Description:** The work under this item is for the placement of new asphaltic concrete pavement surface course, including materials, excavation, backfill, and compacting as shown on the plans.

**Method:** Conform to MAG Standard Specification 321 except as supplemented or modified herein.

**Materials:** Materials and Manufacture: Text is deleted and the following inserted:

All asphaltic concrete used in the project shall be on the City of Phoenix approved mixes. Aggregate base course shall conform to Section 702 of the MAG Standard Specifications.

Pavement mix shall be comprised of a surface course of D-1/2" mix.

**Asphalt Base and Surface Course (Supplement):** The surface course shall not be placed until all landscaping has been completed and accepted and all work that might result in earth being deposited on the finished road has been completed.

**Measurement:** Text in Section 321.8 shall be deleted and the following inserted:

Measurement shall be made to the nearest square yard for asphalt pavement (2" depth) as indicated in the Bid Schedule, and within the designated limits of paving shown on the plans, which shall include any tack coat per MAG Standard Specification 329.

**Payment:** Text in Section 321.9 shall be deleted and the following inserted:

Asphalt Pavement (2" Depth) will be paid at the unit price bid per square yard as indicated on the Bid Schedule, which amount will be considered full compensation for the work complete and in place including any specified tack and/or prime coats. Upon completion of the milling of pavement, the Contractor shall be eligible to receive 85% of the unit cost, with the remaining 15% paid when the surface course is completed.

**Item 15 -- Asphalt Concrete, 1-1/2" Thick Type 'D' 1/2**

**Description:** The work under this item is for the placement of new asphaltic concrete pavement surface course, including materials, excavation, backfill, and compacting as shown on the plans.

**Method:** Conform to MAG Standard Specification 321 except as supplemented or modified herein.

**Materials:** Materials and Manufacture: Text is deleted and the following inserted:

All asphaltic concrete used in the project shall be on the City of Phoenix approved mixes. Aggregate base course shall conform to Section 702 of the MAG Standard Specifications.

Pavement mix shall be comprised of a surface course of D-1/2" mix.

**Asphalt Base and Surface Course (Supplement):** The surface course shall not be placed until all landscaping has been completed and accepted and all work that might result in earth being deposited on the finished road has been completed.



**Measurement:** Text in Section 321.8 shall be deleted and the following inserted:

Measurement shall be made to the nearest square yard for asphalt pavement (1-1/2" depth) as indicated in the Bid Schedule, and within the designated limits of paving shown on the plans, which shall include any tack coat per MAG Standard Specification 329.

**Payment:** Text in Section 321.9 shall be deleted and the following inserted:

Asphalt Pavement (1-1/2" Depth) will be paid at the unit price bid per square yard as indicated on the Bid Schedule, which amount will be considered full compensation for the work complete and in place including any specified tack and/or prime coats. Upon completion of the milling of pavement, the Contractor shall be eligible to receive 85% of the unit cost, with the remaining 15% paid when the surface course is completed.

**Item 16 -- Concrete Single Curb, MAG Detail 222, Type "A"**

**Description:** The work under these items will consist of the construction of concrete single curb complete in place. This includes curb terminations and transitions as shown on the plans.

**Materials:** Concrete shall be Class B per MAG Section 725.

**Method:** Conform to MAG Section 340.

**Measurement and Payment:** Measurement and payment for concrete single curb shall be by the linear foot at the unit price specified in the Bid Schedule and shall include all labor and materials required to construct as specified.

Measurement for curb terminations and transitions shall be included with the linear measurement of the single curb as shown on the plans.

**Item 17 -- Concrete Sidewalk, MAG Detail 230**

**Description:** The work under these items will consist of the construction of concrete sidewalk, complete in place, as shown on the plans.

**Materials:** Concrete shall be Class B per MAG Section 725.

**Method:** Conform to MAG Section 340.

**Measurement and Payment:** Measurement and payment for concrete sidewalk shall be at the unit price per square foot as specified in the Bid Schedule and shall include all labor and materials required to construct as specified.

**Item 18 -- Concrete Curb & Gutter, MAG Detail 220-1, Type "A"**

**Description:** The work under these items will consist of the construction of concrete curb and gutter complete in place. This includes curb terminations and transitions as shown on the plans.

**Materials:** Concrete shall be Class B per MAG Section 725.

**Method:** Conform to MAG Section 340.

**Measurement and Payment:** Measurement and payment for curb and gutter shall be by the linear foot at the unit price specified in the Bid Schedule and shall include all labor and materials required to construct as specified.

Measurement for curb terminations and transitions shall be included with the linear measurement of the curb and gutter as shown on the plans

**Item 19 -- Concrete Driveway, COS Detail 3-10**

**Item 20 -- Concrete Driveway, MAG Detail 250-1**

**Description:** The work under these items will consist of the construction of concrete driveways, complete in place, as shown on the plans.

**Materials:** Concrete shall be Class A per MAG Section 725.

**Method:** Conform to MAG Section 340.

**Measurement and Payment:** Measurement and payment for concrete driveway shall be at the unit price per square foot as specified in the Bid Schedule.

**Item 21 -- Concrete Median Nose Transition, MAG Detail 223**

**Description:** The work under these items will consist of the construction of concrete median nose transitions, complete in place, as shown on the plans.

**Materials:** Concrete shall be Class B per MAG Section 725.

**Method:** Conform to MAG Section 340.

**Measurement and Payment:** Measurement and payment for median nose shall be per square foot at the unit price specified in the Bid Schedule and shall include all labor and materials required to construct as specified.

Single curb or curb and gutter shall be paid for separately and measured per linear foot as specified herein.

**Item 22 -- Concrete Curb Ramp, Modified COS Detail 3-11**

**Description:** The work under these items will consist of the construction of concrete curb ramps, complete in place, as shown on the plans.

**Detectable Warnings:** Second sentence of the MCDOT Supplement to the MAG Uniform Standard Specification is revised to read:

Truncated domes shall have the following nominal dimensions: base diameter of 0.9 inches, top diameter of 0.45 to 0.6 inches, height of 0.2 inches, and dome spacing center-to-center spacing of 2.35 inches, measured between the most adjacent domes on the square grid.

A list if approved truncated dome suppliers for the City of Surprise will be provided on request of the contractor or at the project pre-construction meeting.

**Measurement and Payment:** of the MCDOT Supplement to the MAG Uniform Standard Specification is revised to read:

Curb ramp installations shall be measured as complete installed units and shall include the ramp curb and the walking surfaces between the ramp curb and back of curb and gutter or signal curb. Detectable warning is considered integral to the walking surface and is considered incidental to the sidewalk ramp installation.

Single curb or curb and gutter shall be paid for separately and measured per linear foot as specified herein.

Payment for sidewalk ramp shall be at the unit price per each as specified in the Bid Schedule.

- Item 23 -- Adjust Manhole Frame & Cover, MAG Detail 422, COS Detail 6-03B & 7-01**  
**Item 24 -- Adjust Manhole Frame & Install Watertight Cover, MAG Detail 224, 422 & 424-1, COS Detail 6-03B & 7-01**  
**Item 25 -- Adjust Water Valve Box, Frame & Cover, MAG Detail 391-1 & 391-2, COS Detail 6-24**

**Description:** The work under these items will consist of adjusting frames, covers and valve boxes for public utility valves and manholes to finished grade as shown on the plans. Watertight manhole covers will be installed at scupper locations as shown on the plans.

Prior to lowering the existing manholes, the Contractor will determine if the manholes are constructed to an elevation sufficient to allow final adjustments to be made with the quantity of grade rings allowed by MAG Standard Details. If the Contractor determines the manholes are not constructed to an elevation sufficient to allow final adjustment per MAG Standard Details, the Contractor will be required to modify the manholes by removing and/or replacing manhole sections and/or cones as necessary to allow the proper adjustments. There will be no extra payment if the manholes need to be modified.

**Method:** Conform to MAG Section 345.

**Measurement and Payment:** Measurement and payment for adjusting public utility frames, covers and valve boxes shall be at the unit price per each item specified in the Bid Schedule and will be full compensation for all, labor, and materials as shown on the plans.

**Item 26 --**      **Adjust Private Utility Valve Box, Frame & Cover MAG Detail 391-1 & 391-2**  
**Item 27 --**      **Adjust Private Utility Manhole Frame & Cover, MAG Detail 422**

**Description:** The work under these items will consist of adjusting frames, covers and valve boxes for private utility valves and manholes to finished grade as shown on the plans.

**Method:** Conform to MAG Section 345.

**Measurement and Payment:** Measurement and payment for adjusting private utility manhole frames, covers and valve boxes shall be at the unit price per each specified in the Bid Schedule and will be full compensation for all, labor, and materials as shown on the plans.

**Item 28 --**      **Asphaltic Concrete Pavement Removal**

**Description:** The work under this item is for the sawcutting and removal of existing asphaltic concrete pavement, including base course if necessary.

**Measurement and Payment:** Payment for sawcutting and removing asphaltic concrete pavement, including base course if necessary, shall be at the unit price per square yard specified in the Bid Schedule and shall include all labor and materials required to remove and dispose of the asphaltic concrete pavement, including base course if necessary, to a location off of the project site.

**Item 29 --**      **Concrete Single Curb, Curb & Gutter Removal**

**Description:** The work under this item is for the removal of existing concrete single curb and curb & gutter as shown on the plans. This includes curb terminations and transitions as shown on the plans.

**Method:** Conform to MAG Section 350.

**Measurement and Payment:** Measurement and payment for removing concrete single curb and curb & gutter shall be at the unit price per linear foot specified in the Bid Schedule and shall include all labor and materials required to remove and dispose of to a location off of the project site.

**Item 30 --**      **Concrete Sidewalk Removal**

**Description:** The work under this item is for the removal of existing concrete sidewalk as shown on the plans.

**Method:** Conform to MAG Section 350.

**Payment:** Payment for removing concrete sidewalk shall be at the unit price per square foot specified in the Bid Schedule and shall include all labor and materials required to remove and dispose of to a location off of the project site.

**Item 31 -- Concrete Pad Removal**

**Description:** The work under this item is for the removal of existing concrete pads as shown on the plans.

**Method:** Conform to MAG Section 350.

**Measurement and Payment:** Measurement and payment for removing concrete pads shall be at the unit price per square foot specified in the Bid Schedule and shall include all labor and materials required to remove and dispose of to a location off of the project site.

**Item 32 -- Concrete Curb Ramp Removal**

**Description:** The work under this item is for the removal of existing concrete curb ramps as shown on the plans.

**Method:** Conform to MAG Section 350.

**Measurement and Payment:** Measurement and payment for removing concrete curb ramps shall be at the unit price per each specified in the Bid Schedule and shall include all labor and materials required to remove and dispose of to a location off of the project site.

**Item 33 -- Concrete Median Nose Removal**

**Description:** The work under this item is for the removal of existing concrete median noses as shown on the plans.

**Method:** Conform to MAG Section 350.

**Measurement and Payment:** Measurement and payment for removing concrete median noses shall be at the unit price per square foot specified in the Bid Schedule and shall include all labor and materials required to remove and dispose of to a location off of the project site.

**Item 34 -- Chain Link Fence and Gate Removal**

**Description:** The work under this item is for the removal and disposal of existing chain link fence and gate as shown on the plans.

**Method:** Conform to MAG Section 350.

**Measurement and Payment:** Payment for removing fence and gate, including post and foundation, shall be at the unit price per linear foot as specified in the Bid Schedule and shall include all labor and materials required to remove fence, gate, post, and foundation.

**Item 35 -- Pipe Culvert and Headwall Removal**

**Description:** The work under this item consists of the removal of the existing pipe culverts and headwalls including backfill, compaction and disposal. Care shall be taken to protect existing underground utilities. See General Notes on plan sheet.

**Measurement and Payment:** Measurement and payment for removing existing pipe culverts and headwalls shall be at the unit price per each specified in the Bid Schedule and shall include all labor and materials required to remove and dispose of to a location off of the project site.

**Item 36 -- Irrigation Pipe Removal**

**Description:** The work under this item is for removing existing irrigation piping as shown on the plan including backfill, compaction and disposal. Care shall be taken to protect existing underground utilities. See General Notes on plan sheet.

**Measurement and Payment:** Measurement and payment for removing existing irrigation pipes shall be at the unit price per linear foot specified in the Bid Schedule and shall include all labor and materials required to remove and dispose of to a location off of the project site.

**Item 37 -- Stand Pipe Removal**

**Description:** The work under this item is for removing existing stand pipes as shown on the plan including backfill, compaction and disposal. Care shall be taken to protect existing underground utilities. See General Notes on plan sheet.

**Measurement and Payment:** Measurement and payment for removing existing stand pipes shall be at the unit price per each specified in the Bid Schedule and shall include all labor and materials required to remove and dispose of to a location off of the project site.

**Item 38 -- Remove Fire Hydrant Assembly**

**Description:** The work under this item is for the removal of existing fire hydrant assemblies as shown on the plans. This work shall include removal of all components from the water main and shall in capping/plugging the existing tee at the main.

**Method:** Confirm to MAG Section 350.

**Measurement and Payment:** Payment for remove fire hydrant assembly shall be at the unit price per each as specified in the Bid Schedule and shall include all labor and materials including removing existing fire hydrant and trenching and back filling required to remove fire hydrant and

plug the water main. All material required including pipes, valves, fittings, and markers are incidental and no extra payment will be made for these items.

**Item 39 -- Install Chain Link Fence and Gate**

**Description:** The work under this item is for the installation of new chain link fence and gates at the locations designated by the City.

**Method:** Conform to MAG Section 420.

**Measurement and Payment:** Payment for installing fence and gate, including post and foundation, shall be at the unit price per linear foot as specified in the Bid Schedule and shall include all labor and materials required to install fence, gate, post, and foundation.

**Item 40 -- Install Fire Hydrant Assembly, MAG Detail 360-2**

**Description:** The work under this item is for the installation of new fire hydrants as shown on the plans.

**Material:**

**Hydrant:** Mueller "Centurion", Clow "Medallion", or Kennedy "K81D" with National Standard hose threads in accordance with MAG Detail 360-2.

**Pipe:** 6" Ductile Iron Pipe, mortar-lined (D.I.P.): In accordance AWWA Standards C150, C151 and C153. Equivalent O.D., Pressure Class 150 minimum. Mortar lining shall be in accordance with MAG Section 750 and AWWA C104. All Ductile Iron Pipe shall be polyethylene wrapped for the entire length in accordance with MAG. Section 610.5. Areas subjected to pressures greater than 100 psi shall be pressure class 200 minimum.

**Fittings:** Push-on or mechanical joint in accordance with AWWA C111 and MAG Section 750.4. Joint restraints, where required, shall be MEG-A-LUG or flanged joint for lengths in accordance with MAG. Detail 303-2.

**Valves:** Mueller, Clow, Kennedy, or M&H resilient wedge seated 6" Gate Valve in accordance with MAG Section 630.3 with valve box and cover in accordance with MAG Detail 391-1 Type "C". Valves installed outside the pavement or in the flow line of a roadway shall have a debris cap installed per MAG STD. DET. 392.

**Method:** Confirm to MAG Section 610.

**Measurement and Payment:** Payment for installing new fire hydrant shall be at the unit price per each as specified in the Bid Schedule and shall include all labor and materials including trenching and back filling required to install new fire hydrant. All material required including pipes, valves, fittings, tapping sleeve & valve (or other means of connection to water main), and markers are incidental and no extra payment will be made for these items.

**Item 41 -- Survey Marker, MAG Detail 120, TYPE 'A'**

**Description:** The work under this item is for providing and installing survey markers, complete in place, where shown on the plans.

**Materials:** Concrete shall be Class B per MAG Section 725.

**Method:** Conform to MAG Section 340.

**Measurement and Payment:** Measurement and payment for survey marker shall be per each at the unit price specified in the Bid Schedule and will be full compensation for all, labor, and materials as shown on the plans.

**Item 42 -- Install 3" PVC Traffic Conduit**

**Description:** The work under this item is for providing and installing 3" polyvinyl chloride (PVC) conduit pipes, as shown on the plans; including trenching, bedding, backfill and compaction.

**Method:** Conform to MAG Section 360.

**Measurement and Payment:** Measurement and payment for the 3" PVC conduit pipes shall be based at the unit price per linear foot as specified in the Bid Schedule and shall include all labor, materials, and work associated with installing polyvinyl chloride conduit pipes as shown on the plan.

**Item 43 -- Install Communications Pull Box, COS Detail 4-15**

**Item 44 -- Install No. 7 Pull Box, COS Detail 4-06**

**Description:** These bid items are for installing pull boxes to finished grade as shown on the plans.

**Method:** Conform to each City of Surprise requirements.

**Measurement and Payment:** Measurement and payment for installing pull boxes and related items such as conduit, terminators, delineators, backfill, compaction, and other items required for installation shall be at the unit price per each item specified in the Bid Schedule and will be full compensation for all labor, materials, and work associated with installing pull boxes as shown on the plans.

**Item 45 -- 8' Concrete Scupper, MAG Detail 206 (Mod.)**

**Item 46 -- 10' Concrete Scupper, MAG Detail 206 (Mod.)**

**Description:** The work under this item is for providing and installing concrete scupper, spillway, and safety rail, as shown on the plans; including excavation, backfill, and compaction.



**Materials:** Concrete for scupper shall be Class A per MAG Section 725. Concrete for spillway shall be Class A or B per MAG Section 725.

**Method:** Conform to MAG Section 505.

**Measurement and Payment** Measurement and payment for the concrete scupper shall be based at the unit price per each as specified in the Bid Schedule and shall include all labor, materials, and work associated with installing concrete scupper, spillway, and safety rail as shown on the plan.

**Item 47 -- Concrete Drop Inlet, MAG Detail 501-5**

**Description:** The work under this item is for providing and installing concrete drop inlet, as shown on the plans; including excavation, backfill and compaction.

**Method:** Conform to MAG Section 618.

**Measurement and Payment:** Measurement and payment for the concrete drop inlet shall be based at the unit price per each as specified in the Bid Schedule and shall include all labor, materials, and work associated with installing concrete drop inlet as shown on the plan.

**Item 48 -- Concrete End Section, MAG Detail 545**

**Description:** The work under this item is for providing and installing concrete end section, as shown on the plans; including excavation, backfill and compaction.

**Method:** Conform to MAG Section 618.

**Measurement and Payment** Measurement and payment for the concrete end sections shall be based at the unit price per each as specified in the Bid Schedule and shall include all labor, materials, and work associated with installing concrete end sections as shown on the plan.

**Item 49 -- Pipe, Reinforced Concrete, Class III, 18"**

**Description:** The work under this item is for providing and installing 18" reinforced concrete pipes, Class III, as shown on the plans; including trenching, bedding, backfill and compaction.

**Method:** Conform to MAG Section 618.

**Measurement and Payment:** Measurement and payment for the 18", reinforced concrete pipes, Class III, shall be based at the unit price per linear foot as specified in the Bid Schedule and shall include all labor, materials, and work associated with installing reinforced concrete pipes as shown on the plan.

**Item 50 -- Dual-Chamber Drywell**

**Description:** The work under this item is for providing and installing a dual-chamber drywell, as shown on the plans; including excavation, backfill and compaction.

**Measurement and Payment:** Measurement and payment will be based at the unit price per each as specified in the Bid Schedule and will be full compensation for all, labor, and materials as shown on the plans.

**Item 51 -- Install 6" Gate Valve, Box, Frame & Cover, MAG Detail 391-1-C**

**Description:** The work under these items will consist of installing valves, valve boxes, frames, and covers for public utilities to finished grade as shown on the plans.

**Method:** Conform to MAG Section 610.7.

**Measurement and Payment:** Measurement and payment for installing public utility valves, valve boxes, frames, and covers shall be at the unit price per each item specified in the Bid Schedule and will be full compensation for all, labor, and materials as shown on the plans.

**Item 52 -- Pipe, Ductile Iron Pipe, Class 350, w/ Restrained Joints, 6"**

**Description:** The work under this item shall consist of furnishing all materials, equipment, and labor for the installation of 6" ductile iron pipe (DIP) waterline, Class 350, as shown on the plans in accordance with MAG Standard Specification Sections 601 and 610. Work shall include all excavation, disposal of excess excavation material, haul off and trucking costs, dumping costs, shoring, installation, fittings, appurtenances, pipe foundation and bedding, backfill, compaction, marking, flushing and testing. Care shall be taken to protect existing underground utilities. See General Notes on plan sheet.

**Method and Material:** For pipe sections requiring joint restraint, allowable joint restraints include fitting systems such as Mega-Lug or other City approved equal, gasket systems such as Field-Loc or other City approved equal, or integral bell-spigot pipe systems such as TR Flex or other City approved equal. When connecting new pipe to existing pipe, Contractor shall install concrete thrust blocks or anchor block assemblies per MAG Standard Detail Nos. 380 and 381.

Bedding shall be installed per MAG Standard Detail 200-1 and 200-2 using ABC. Trench backfill shall be as indicated on the plan and per MAG Specification. All waterlines shall be polyethylene wrapped per MAG Specification Section 610.6. Costs for polyethylene protection shall be incidental to this work item. Double (2) polyethylene protection where specified on the plans is also incidental to this item.

Contractor shall pothole to verify all utility conflicts and utility crossings which are known, marked (Blue Staked) or shown on the project plan documents to ensure and provide for the required clearances. Failure on the Contractor's behalf to adequately locate and verify the utility conflicts/crossings well in advance of any main line or lateral line trench excavation shall

preclude any claims or extra costs by the Contractor for delays or stand-by time. All adjacent utilities and perpendicular or transverse utility crossings shall be protected in place.

**Measurement and Payment:** Measurement will be by the linear foot of installed pipe through all fittings and valves. Payment shall be made at the unit price bid and shall be considered full compensation for this work. Asphalt pavement removal and replacement shall be paid by separate Bid Items.

**Item 53 --      Install 1-1/2" Reclaimed Water Service Connection, COS Detail 6-20**

**Description:** This bid item is for installation of the water meter and connection to the City of Surprise reclaimed water system, where shown on the plans. A water meter shall be applied and paid for by the Contractor from the City of Surprise. Installation shall occur per City Standard Detail 6-20. The meter shall be located per the contract documents.

**Method:** Conform to MAG Section 616 and 631.

**Measurement and Payment:** Measurement and payment for 1-1/2" Reclaimed Water Service Connection shall be at the unit price per each item specified in the Bid Schedule and will be full compensation for all, labor, and materials as shown on the plans. This item shall also include the payment of required development fees by the contractor.

**Item 54 --      Install 4" Schedule 40 PVC Irrigation Sleeve**

**Description:** This bid item is for the installation of PVC irrigation sleeves. Items of work include but are not limited to:

- Confirmation and Blue Staking for the location for all existing utility lines and sources. Provision of connection to existing utilities for new irrigation system at locations as shown and approved by the City of Surprise.
- Assurance that private systems adjacent to and affected by work are in operating condition and approved by adjacent property owner or designated representative at final completion.
- Clean up, inspection, and adjustments for complete coverage.
- Required regulatory tests, inspections, maintenance, and warranty.
- Provision of As-Built Drawings in hard copy and electronic (PDF) format.
- Completion of punch list, final walk through and acceptance.
- Warranty and maintenance periods.

**Materials:** Conform to Section 440 and 757 of the MAG Standard Specifications, except as modified herein.

**Section 440.3 Materials:** of the Standard Specifications is modified to add:

### Plastic Pipe and Fittings:

Identify all pipes with the following indelible markings such as Manufacture's name, nominal pipe size, Schedule of class, Pressure Rating (PSI), NSF (National Sanitation Foundation) seal of approval, and Date of Extrusion.

Solvent Weld Pipe: Manufactured from virgin polyvinyl chloride (PVC) compound in accordance with ASTM D2241 and ASTM DI784; cell classification 12454-B, Type 1, Grade

- Pipe shall be purple.
- Fittings: Standard weight, Schedule 80, injection molded PVC; complying with ASTM DI784 and D2466, cell classification 12454-B.
  - Threads: Injection molded type (where required).
  - Tees and ells: Side gated
  - Threaded Nipples: ASTM D2464, Schedule 80 with molded threads.
  - Joint Cement and Primer: Type as recommended by manufacturer of pipe and fittings.

**Method:** Conform to Section 440 and 757 of the MAG Standard Specifications, except as modified herein.

**Section 440.6 Pipe installation:** of the Standard Specifications is modified to add:

Sleeves: All piping under paving shall be sleeved with minimum 4" schedule 40 sleeve as noted and detailed.

Install sleeves and pipe at depth required by local codes. Compact backfill material in 6 inch lifts. Set in place, cap and pressure test all piping under paving, in presence of Owner's Representative prior to backfilling and paving operations.

**Measurement and Payment:** Measurement and payment shall be made at the price bid per linear feet for the 4" Schedule 40 PVC Irrigation Sleeve as specified in the Bid Schedule including trenching, backfill and compaction. Payment shall include all labor, materials, and work associated with installing pipes as shown on the plan.

### **Item 55 -- Concrete Barrier Removal**

**Description:** The work under this item consists of the removal of the existing concrete barriers including backfill, compaction and disposal.

**Method:** Conform to MAG Section 350.

**Measurement and Payment:** Measurement and payment for removing existing concrete barriers shall be at the unit price per linear foot specified in the Bid Schedule and shall include all labor and materials required to remove and dispose of to a location off of the project site.

**Item 56 --      Water Service Pipe Removal**

**Description:** The work under these items will consist of removing pipe and connection pieces for existing water service pipelines as shown on the plans.

**Method:** Conform to MAG Section 350.

**Measurement and Payment:** Measurement and payment for removing pipe and connection pieces for existing water service pipelines shall be at the unit price per linear foot specified in the Bid Schedule and will be full compensation for all, labor, and materials as shown on the plans.

**Item 57 --      Water Valve Removal**

**Description:** The work under these items will consist of removing frames, covers and boxes for existing water valves as shown on the plans.

**Method:** Conform to MAG Section 350.

**Measurement and Payment:** Measurement and payment for removing valve frames, covers, and boxes shall be at the unit price per each specified in the Bid Schedule and will be full compensation for all, labor, and materials as shown on the plans.

**PART E: SIGNING AND MARKING BID ITEMS**

**General**

The following bid items are numbered to correspond to the Litchfield Road Schedule of Values and Cactus Road Schedule of Values (collectively referred to as the Bid Schedule) and are included to explain details of work not covered by applicable Standard Specifications and to relate work and pay quantities to the specific Bid Item.

Any items of work shown on the plans but not covered by bid items, as shown on the Bid Schedule, shall be considered incidental to the project.

All work and materials shall conform to the Maricopa Association of Governments “Uniform Standard Specifications for Public Works Construction”, 2015 Edition (MAG Standard Specifications), except as modified in these Special Provisions or on the Contract Plans.

**Item 58 --      Remove and Salvage Traffic Sign**

**Item 59 --      Relocate Sign (on New Post and Foundation)**

**Description:** The work under this item is for the removal, relocation and salvage of existing roadway, and informational signs.

**Method:** Removal of existing signs will conform to MAG Section 350.

### **Measurement and Payment:**

Measurement and payment for removing, relocating and salvaging signs, including post, and foundation, shall be at the unit price per each as specified in the Bid Schedule and shall include all labor and materials required to remove sign, post, and foundation. All signs shall be returned in good condition to the City.

### **Item 60 -- Remove Pavement Marking (Incl. Raised Pavement Markers)**

**Description:** The work under this item is for pavement marking removal in accordance with these specifications, where indicated on the Striping Plans, or where determined by the Engineer.

**Method:** Conform to Section 460 of the MCDOT Supplement to the MAG Uniform Standard Specification, except as modified herein:

Painting over existing striping shall not constitute stripe obliteration.

**Measurement and Payment:** of the MCDOT Supplement to the MAG Uniform Standard Specification is revised to read:

Removal of Pavement Markings will be measured as a single complete Item of work and paid at the lump sum price indicated on the Schedule of Bid Items, which amount shall be considered full compensation for the work as described herein and as shown on the plans.

<b><u>Item 61 --</u></b>	<b><u>4" White Thermoplastic Traffic Stripe</u></b>
<b><u>Item 62 --</u></b>	<b><u>4" Yellow Thermoplastic Traffic Stripe</u></b>
<b><u>Item 63 --</u></b>	<b><u>8" White Thermoplastic Traffic Stripe</u></b>
<b><u>Item 64 --</u></b>	<b><u>12" White Thermoplastic Traffic Stripe</u></b>
<b><u>Item 65 --</u></b>	<b><u>12" Yellow Thermoplastic Traffic Stripe</u></b>
<b><u>Item 66 --</u></b>	<b><u>24" White Thermoplastic Traffic Stripe</u></b>
<b><u>Item 67 --</u></b>	<b><u>Thermoplastic Symbol (Left Turn)</u></b>
<b><u>Item 68 --</u></b>	<b><u>Thermoplastic Symbol (Right Turn)</u></b>
<b><u>Item 69 --</u></b>	<b><u>Thermoplastic Symbol (RR Crossing)</u></b>

**Description:** The work under this item consists of the installation of longitudinal and transverse thermoplastic pavement marking and thermoplastic pavement symbols.

**Method:** Conform to Section 462 of the MCDOT Supplement to the MAG Uniform Standard Specification

**Measurement and Payment:** of the MCDOT Supplement to the MAG Uniform Standard Specification is revised to read:

Measurement and payment for Thermoplastic Traffic Stripe (color and width per plan) shall be at the unit price per linear foot as indicated on the Schedule of Bid Items, which amount shall be considered full compensation for the work as described herein and as shown on the plans.

Measurement and payment for Thermoplastic Symbol and Thermoplastic RR Crossing Symbol shall be at the unit price per each as indicated on the Schedule of Bid Items, which amount shall be considered full compensation for the work as described herein and as shown on the plans.

**Item 70 --**      **Reflectorized Raised Pavement Marker (Type D)**

**Item 71 --**      **Reflectorized Raised Pavement Marker (Type G)**

**Description:** The work under this item consists of the installation of Reflectorized Raised Pavement Markers (Type D & Type G) for longitudinal pavement marking.

**Method:** Conform to Section 463 of the MCDOT Supplement to the MAG Uniform Standard Specification

**Measurement and Payment:** of the MCDOT Supplement to the MAG Uniform Standard Specification is revised to read

Measurement and payment for Reflectorized Raised Pavement Marker (Type D, G) shall be at the unit price per each as indicated on the Schedule of Bid Items, which amount shall be considered full compensation for the work as described herein and as shown on the plans.

**Item 72 --**      **Perforated Sign Post**

**Item 73 --**      **Perforated Sign Post Foundation**

**Item 74 --**      **U-Channel Sign Post**

**Item 75 --**      **U-Channel Post Installation**

**Description:** The work under this item consists of the installation of Perforated Signs Posts, U-Channel Sign Posts and foundations for traffic signs.

**Method:** Conform to Section 464 of the MCDOT Supplement to the MAG Uniform Standard Specification

**Measurement and Payment:** Conform to Section 464 of the MCDOT Supplement to the MAG Uniform Standard Specification

**Item 76 --**      **Flat Sheet Aluminum Sign Panel, High Intensity Grade**

**Description:** The work under this item consists of the installation of High Intensity Grade Flat Sheet Aluminum sign panels for traffic signs.

**Method:** Conform to Section 465 of the MCDOT Supplement to the MAG Uniform Standard Specification

**Measurement and Payment:** Conform to Section 465 of the MCDOT Supplement to the MAG Uniform Standard Specification

## **PART F: ROADWAY LIGHTING BID ITEMS**

### **General**

The following information is provided to emphasize critical work and is intended to supplement the standard specifications. Should there be a conflict with the specifications, this document shall take precedence.

Alternates proposed by the Contractor shall be pre-approved by the City Engineering Manager. Approval of alternate products shall be on an equal basis with the product specified and shall be submitted a minimum of ten (10) days prior to bid opening. Structural calculations shall be furnished for alternate products and certified by a structural engineer, registered in the state of Arizona. Luminaires and lamps shall meet or exceed the photometric, electrical, and mechanical requirements for the specified products.

The Contractor shall comply with State and City statutes, and manufacturer's recommendations.

The submittal package shall consist of three (3) copies of Equipment/Material to be installed and shall be bound/stapled in a folder and submitted at the time of permit application.

Prior to submitting a proposal, the bidder shall examine all general construction drawings and visit the construction site to become familiar with existing conditions under which he will operate and which will in any way affect the work under the contract. No subsequent allowance will be made in this connection in the behalf of the Contractor for any error or negligence on his part.

Prior to ordering any materials or doing any work, the contractor should verify dimensions at the site. Immediately report differences to the Engineering Mgr. and should not proceed with work until the Engineering Mgr. renders a decision. No extra charges or compensation will be allowed for differences in actual dimensions and dimensions indicated on the drawings.

The following bid items are numbered to correspond to the Litchfield Road Schedule of Values and Cactus Road Schedule of Values (collectively referred to as the Bid Schedule) and are included to explain details of work not covered by applicable Standard Specifications and to relate work and pay quantities to the specific Bid Item.

Any items of work shown on the plans but not covered by bid items, as shown on the Bid Schedule, shall be considered incidental to the project.

All construction related to the installation of street lights including above ground and underground construction shall be in accordance with the requirements of the Arizona Public Service Company, "2015 Electric Service Requirements Manual".



**Item 77 -- 1-2½" PVC Conduit (Trenching)**  
**Item 78 -- 2-2½" PVC Conduit (Trenching)**

**Description:** The work under this item consists of the installation of 2½ inch conduits for street lighting as shown on the plans. The contractor shall trench and install the 2½ inch conduits at a minimum depth of 27 inches from finished grade to the top of conduit. A minimum of 6 inches of shade shall be provided over the conduit. The installation of the street light conduit shall be per the APS requirements. The contractor shall coordinate with APS at 602-320-7069 before ground disturbance for conduit installation requirements.

The Contractor shall refer the APS plans for WO # WA218496 for details related to the installation of the conduits.

**Measurement and Payment:** 2½ inch conduits will be measured by the linear foot. Conduit will be measured as the horizontal distance along the alignment of the installed conduit from center of pull box to pull box or from the conduit trunk line to the pull box. Pull tape, warning tape, and duct plugs shall be incidental to the measurement of conduit. No separate measurement or payment shall be made for the installation of tracer wire in conduits, the cost of which shall be included in the contract price for conduits.

**Item 79 -- 1" SONOTUBE Conduit (from Pole to Pull Box)**

**Description:** The work under this item consists of the installation of 1 inch SONOTUBE conduit between the APS provided pull box and the direct buried street light pole that will be installed by APS as shown on the plans. The contractor shall trench and the SONOTUBE conduit at a depth of 36 inches from finished grade to the top of conduit. The installation of the SONOTUBE conduit shall be per the APS requirements. The contractor shall coordinate with APS at 602-320-7069 before ground disturbance for conduit installation requirements.

The Contractor shall refer the APS plans for WO # WA218496 for details related to the installation of the SONOTUBE conduits.

**Materials:** The 1 inch SONOTUBE conduits shall be provided by APS. The contractor shall coordinate with the APS Warehouse at 602-371-7758 to schedule the pick up for the SONOTUBE conduits.

The SONOTUBE conduits once obtained from APS are solely the responsibility of the contractor during transport, storage and during installation until final acceptance of the conduit installation by APS and the City. Any damage to the conduits is the responsibility of the contractor until the final acceptance. The contractor shall provide secure storage for the SONOTUBE conduits at no additional cost to the City.

Damaged SONOTUBE conduits shall not be allowed and shall be replaced by the Contractor at no additional cost to the City.

**Measurement and Payment:** 1 inch SONOTUBE conduit will be measured by the linear foot. Conduit will be measured as the horizontal distance along the alignment of the installed conduit from center of pull box to street light. Pull tape, warning tape, and duct plugs shall be incidental to the measurement of conduit. No separate measurement or payment shall be made for the installation of tracer wire in conduits, the cost of which shall be included in the contract price for conduits.

**Item 80 --      Install pull box (APS furnished)**

**Description:** Pull boxes and conduit sweeps shall be installed in accordance with APS Standards.

The conduit entries shall be vertically and horizontally aligned so that the cable can be pulled through the pull box by using a pull-through sleeve to bridge the gap between entering and exiting conduits.

Pull boxes shall be set and adjusted so that they are 2" above finished grade. When no grade is established the pull box shall be set as requested by the Engineer.

All pull box covers shall be secured with the required bolts and washers before final acceptance of the project.

All pull boxes shall be left free of dirt and debris upon completion of the work.

**Materials:** The pull box shall be provided by APS. The contractor shall coordinate with the APS Warehouse at 602-371-7758 to schedule the pick up for the pull box.

The pull boxes once obtained from APS are solely the responsibility of the contractor during transport, storage and during installation until final acceptance of the pull boxes by APS and the City. Any damage, missing parts or components are the responsibility of the contractor until the final acceptance. The contractor shall provide secure storage for the pull boxes at no additional cost to the City.

Cracked or broken pull boxes shall not be allowed and shall be replaced by the Contractor at no additional cost to the City.

**Measurement and Payment:** Pull boxes shall be measured per each pull box installed, complete in place, including, but not limited to, pull box, pull box cover, excavation, backfill, etc.

**Item 81 --      Miscellaneous Work for Street Lights and Power Supply per APS design (Conduit Installation, Ground Rods etc.)**

**Description:** The work under this item consists of the work including but not limited to the installation of conduit plugs, ground rods, flat straps and all other work involved in the completion of a functional conduit and pull box system for the street lights as shown on the plans. The work involved shall be performed per APS provided plans and standards. The

contractor shall coordinate with APS at 602-320-7069 before ground disturbance for any work involved.

**Measurement and Payment:** The Miscellaneous work will be measured as a single complete Item of work and paid at the lump sum price indicated on the Schedule of Bid Items, which amount shall be considered full compensation for the work as described herein and as shown on APS plans.

## **PART G: LANDSCAPING BID ITEMS**

### **General**

The following bid items are numbered to correspond to the Litchfield Road Schedule of Values and Cactus Road Schedule of Values (collectively referred to as the Bid Schedule) and are included to explain details of work not covered by applicable Standard Specifications and to relate work and pay quantities to the specific Bid Item.

Any items of work shown on the plans but not covered by bid items, as shown on the Bid Schedule, shall be considered incidental to the project.

All work and materials shall conform to the Maricopa Association of Governments “Uniform Standard Specifications for Public Works Construction”, 2015 Edition (MAG Standard Specifications), except as modified in these Special Provisions or on the Contract Plans.

### **Item 82 -- Grading, Excavation, and Export of Median On-Site Soil**

#### **Description:**

Grading Cut, Trenching, Excavation and Export of on-site soil shall conform to Section 205 of the MAG Standard except as modified as follows:

The work under this Item shall consist of earthwork within median islands including excavating, sloping, swaling, setting grade for sub-grade to allow for the correct distance between the top of decomposed granite (compacted to 2” depth) and the top of curb per details. Grading shall consist of all rounding/smoothing tops and ends of excavations, hauling, loading, depositing, raking, conditioning, spreading and compacting to maximum 85% all planting areas and, setting sub-grade relative to top of curb, and providing material complete in place, and disposal of surplus material.

#### **Materials:**

Materials shall be per MAG Standard Specifications Part 200.

Construction Requirements: The Contractor shall haul off and dispose all surplus material in accordance with federal, state and local regulations. On site disposal will not be available for this project.

All landscape areas inside the curb line shall be native soils in which materials larger than 1-1/2" inches in diameter have been removed. Contractor shall remove materials such as pavement construction debris, toxic and deleterious materials.

Compact trenches, foundation backfill or other filled excavations before planting. Loosen all areas to receive planting, and areas that have been previously paved (including areas previously that were streets) which will become planting areas to 85% maximum. Commencement of work indicates acceptance of job conditions if no notice is given to the owner stating otherwise. Remove all rock and material not conducive to plant growth that exceeds 1 1/2" diameter.

Cooperate with other contractors working in and adjacent to landscape work areas. Provide potable water to complete planting and maintenance activities. Water obtained off site is incidental to work. No separate payment shall be made.

Mark and maintain clearance along routes designated for public vehicular and pedestrian travel. Coordinate pedestrian and vehicular access with all other contractors and in accordance with City of Surprise requirement or concrete remnants. If imported, material shall conform to MAG Section 210. Clean fill soil is intended for those areas inside the curb line where landscaping and irrigation will be installed. Non-organic materials encountered in the course of construction shall be exported with material at no additional cost to the City of Surprise.

### **Measurement and Payment:**

Measurement and payment for earth work shall be on cubic yard basis and shall include excavating, sloping, rounding tops and ends of excavating, sloping, rounding tops and ends of excavations, hauling, loading, depositing, raking, conditioning, spreading and compacting planting areas to maximum 85%, setting sub-grade relative to top of curb, and providing material complete in place, and disposal of surplus material.

### **Item 83 -- Soil Preparation, Amendments & Conditioners**

#### **Description:**

Contractor to perform soils investigation to include agronomy and bioassay tests to verify needed soil amendments and any presence of contaminants and/or soil sterilants to ensure better survival of new plantings. Contractor shall allow sufficient time in the construction schedule to complete the bioassay tests and any subsequent mitigation should it be required. At least one test per median shall be conducted; and conducted on soil that will remain in place for planting, and within one (1) month prior to beginning landscape work. Samples shall be taken from 6" minimum depth of soil that is proposed to remain in place. Contractor shall record location of sample taken on As Built drawings with date and lab performing testing and analysis. Lab results shall be provided to owner or owner's representative, via hard copy or email at time received by the contractor. Lab test reports shall indicate the soils lab, name of lab technician and descriptive locations where samples were taken which correspond to the As Built plans.

Should any conflicts arise between soils lab report and plans, the project landscape architect shall be contacted for clarification. Contractor shall submit corrective materials and quantities for all amendments needed which need to be added to the project.

Inform project inspector 48 hours prior to performing tilling operations. All materials to be tilled in shall be available for inspection to assure proper quantities and procedures. Delivery tickets for all materials shall be required to be provided to indicate date of delivery, material, cost, source, and quantity to receive payment approval for these items. Pre-packaged materials shall be stored in original packaging until incorporation. Compact planter soil to 85% and adjust grade as necessary by providing additional planter soil.

### **Materials:**

Pre-emergent Herbicide: Provide 40.4 percent oryzlin and 59.6 percent inert ingredients, or 75% dimethyl tetrachloroterephthalate and 25 percent inert ingredients, applied in accordance with manufacturer's instructions. Surflan or equal.

Round-Up or approved equal for weed and/or grass control on existing weeds for the duration of construction and maintenance and guarantee period.

Commercial Fertilizer: Complete fertilizer of neutral character, with 50% of elements derived from organic sources and containing not less than 16% total nitrogen, 20% available phosphoric acid and 0% soluble potash. Ammonium Phosphate: Commercial product with an N-P-K value of 16-20-0. Incorporate into planting area soil at minimum rate of 10 pounds per 1000 sf.. Additional quantity may be needed per soils lab report.

Gypsum: Calcium sulfate dehydrate as supplied and packaged for landscape use. Incorporate into planting area soil at 20 pounds per 1000 sf and into tree and shrub planting pits. Additional quantity may be needed per soils lab report.

Soil Sulphur: Elemental Sulphur (99.5% pure), commercially prepared so that 100% passes a 15 mesh screen and 50% passes a 50 mesh screen. Incorporate into planting area soil at 10 pounds per 1000 square feet. Additional quantity may be needed per soils lab report.

Tree and Shrub Backfill Mix: Imported mulch backfill mix for all at grade planting areas on site. Supplier shall be local and reputable as a provider of horticultural grade planting materials and soil amendments. Backfill mix shall be obtained from a single source location. Supplier shall deliver to site as homogeneous mixture. Backfill Mix Certification: Certification shall provide original source, supplier, and address for all materials. Planter soil mix shall be as follows:

1. Components shall contain naturally aged and composted ponderosa pine bark, sawdust and gypsum. All components of soil mix shall be horticultural grade material.
2. PH of all components shall be between 5.5 and 7.5.
3. Soluble salts shall not exceed 1200.
4. Plasticity index shall be between 3 and 10 inclusive.
5. 70% Clean Topsoil

6. 20% Composted Forest Mulch
7. 10% Clean Sand
8. 2 Pounds Agricultural Grade Gypsum (Trees Only)

Lab Test Results: The contractor shall obtain, pay for, and provide lab test results for the backfill mix and all to be used on this project. Material to be used on this project shall have been tested within 5 days prior to delivery to site. Delivery tickets shall be provided at time of delivery and include lab results, date of testing, contact person and verification of source. Consider settlement and compaction and bring to level specified. Excess material shall be removed from job site.

Planting Tablets: Equal to Agriform 21 gram 16-20-0 tablets. Use at the following rates (or as otherwise recommended by the manufacturer and agronomy test):

- One-Gallon Container: 1 tablet.
- Three-Gallon Container: 2 tablets.
- Five-Gallon Container: 3 tablets.
- Fifteen-Gallon Container: 4 tablets.
- 2-inch Caliper Trees: 6 tablets.
- Greater than 2" Caliper Trees: 1 tablet per each ½ inch of trunk.

Consider settlement and compaction and bring to level specified. Excess material shall be removed from job site.

### **Construction Requirements:**

Soil Testing, Preparation, Amendments, Backfill, Chemicals, and Fertilizers shall consist of ripping or tilling top soil to a minimum depth of 8" to loosen soil and remove materials larger than 1-1/2" from the soil profile. Incorporate soil amendments after soil is sufficiently loose so as to allow even distribution of the amendments specified at the rates given in the drawings. Water in all amendments prior to planting.

After sub grade is established per project plans and details, contractor shall incorporate soil amendments in accordance with lab test reports. Areas of the medians receiving plant materials shall be tilled to a minimum 8" depth. Soil preparation, amendments, and conditioners shall be added to the areas being tilled to fully incorporate the amendments for a homogenous mixture of soil and amendments. The Contractor shall be responsible to remove materials and debris not acceptable for horticultural purposes during this operation.

### **Measurement and Payment:**

Measurement and payment shall be made at the price bid per square foot the item to include all labor, materials, deliveries, lab tests, and equipment to complete the work to provide soil preparation, amendments, backfill, conditioners, chemicals, and fertilizers. Work shall create a level subgrade suitable for planting at the elevations provided on plan details and drawings.

**Item 84 -- Trench Excavation Backfill and Compaction per MAG Section 601**

**Description:**

Trench sizes and depths, backfill materials and compaction shall be completed per MAG Section 601.

**Measurement and Payment:**

Measurement and payment shall be made at the price bid per linear foot for the item to include all labor, materials, deliveries, lab tests, compaction testing, and equipment to complete the work.

<b><u>Item 85 --</u></b>	<b><u>Shrubs 1 Gallon</u></b>
<b><u>Item 86 --</u></b>	<b><u>Shrubs 3 Gallon</u></b>
<b><u>Item 87 --</u></b>	<b><u>Shrubs 5 Gallon</u></b>
<b><u>Item 88 --</u></b>	<b><u>2" Caliper Tree</u></b>
<b><u>Item 89 --</u></b>	<b><u>1/2" Screened Decomposed Granite</u></b>
<b><u>Item 90 --</u></b>	<b><u>1 1/2"-3" D.G.(Pit Run Rock)</u></b>
<b><u>Item 91 --</u></b>	<b><u>Plant Establishment Guarantee and Maintenance</u></b>

**Description:**

These items are for furnishing all labor, materials, supplies, equipment, tools and transportation, to perform all operations to complete installation of landscape planting as shown on drawings and as specified. Items of work include but are not limited to:

- Procurement of all applicable licenses, permits, and fees.
- Coordinate all work with other contractors.
- Application of pre-emergent (2 applications) herbicide per label instructions by Certified Pesticide Applicator and in accordance with State Regulations.
- Application of weed killer per label instructions by Certified Pesticide Applicator in accordance with State Regulations.
- Installation/application of backfill planting soil mix and amendments per details and specifications.
- Fine grading of all landscape areas.
- Installation of plant materials.
- Installation of decomposed granite.
- Apply second application of pre-emergent.
- Maintenance landscape throughout construction period.
- Maintenance and Warranty Period.
- Record or As-Built Drawings.

**Materials:**

Conform to Section 430 and 795 of the MAG Standard Specifications, except as modified herein.

**Section 430.2 General:** of the Standard Specifications is modified to add:

Planter Soil Preparation:

Planting areas shall be prepared for planting by:

- Removing existing decomposed granite, excess soil, rocks or boulders.
- Removing existing shrubs as indicated.
- Removing existing trees, only those noted for removal on drawings.
- Remove debris and deleterious materials greater than 1-1/2" from entire planting areas that are not conducive to healthy plant growth.
- Contact Owner's Representative regarding existing tree roots that present conflicts.

Landscape Grading:

After sub grade is established per project plans and details, contractor shall incorporate soil amendments and till in to a depth of 8"

Inform project inspector 48 hours prior to performing tilling operations. All materials to be tilled shall be available for inspection to assure proper quantities and procedures. Delivery tickets for all materials shall be provided to indicate date of delivery, material, cost, source, and quantity to receive payment approval for these items. Pre-packaged materials shall be stored in original packaging until incorporation. Compact planter soil to 85% and adjust grade as necessary by providing additional planter soil.

**Section 430.5 Tree, Shrub, and Ground Cover Planting:** of the Standard Specifications is modified to add:

Trees, Shrubs, Groundcover, and Accents: Provide trees, shrubs, groundcovers, and accents of quantity, size, genus, species and variety shown and scheduled for landscape work and complying with recommendations and requirements of references. Provide healthy, vigorous stock, grown in a recognized nursery in accordance with good horticultural practice, and free of disease, fungus, root-bound condition, insects, eggs, larvae and defects such as knots, sunscald, injuries, abrasions or disfigurement.

Do not prune plants before delivery. Trees with damaged or crooked leaders or multiple leaders (unless specified) will be rejected. Trees with fresh cuts of limbs over 3/4" which have not completely calloused will be rejected. Provide copy of delivery ticket for each source for all plant material.

Label each plant with securely attached waterproof tag bearing legible designation of botanical and common name, including variety or cultivar.

Stakes and Wire Ties: Provide stakes of sound new 2" diameter x 10' cedar, redwood or Lodge pole pine, free of knotholes and other defects. Provide wire ties of 2-strand, twisted, pliable zinc



coated galvanized iron wire not lighter than 12 gauge. Provide not less than 2" diameter reinforced rubber or plastic hose, cut to required lengths and of uniform color, material and size to protect tree trunks from damage by wires. Place stakes and trim stakes as required avoiding contact with limbs and trunk(s). Do not drive stake through root balls. Place stakes in position and quantity shown on details.

**Layout for Plant Materials:** Layout plant locations and re-stake if necessary per layout approved with irrigation installation. Secure Owner's Representative acceptance before start of planting. Make minor adjustments to plant locations on site as requested by Owner's Representative.

**Setting and Backfilling for Trees, Shrubs and Accents:** Set plant material stock plumb and in center of pit with top of ball at elevation necessary to accomplish finished landscape grades as per details. Remove pallets or containers before setting. Cut cans on two sides with a metal cutter or other cutting device; remove bottoms of wooden boxes before setting. Do not use spade to cut cans. Do not handle container plants by foliage, branches or trunks.

After removing plant from container, lightly scarify side of rootball to eliminate root-bound condition.

Do not use nursery stock if ball is cracked or broken before or during planting operation. When set, place additional backfill around base and sides of ball. Work each layer to settle backfill and eliminate voids and air pockets. When excavation is approximately two-thirds full, water thoroughly before placing remainder of backfill. Repeat watering until no more is absorbed. Water again after placing final layer of backfill. Do not set so top of rootball is below top of subgrade.

Include all fertilizing materials and other amendments in backfill mix. Do not apply to top of soil surface. Obtain inspection for procedures and materials as described in 3.02 B.

Remove all nursery plant labels and nursery stakes from plants.

Prune plants only if directed by Owner's Representative.

Stake all trees as shown on details. Set stakes vertical and space to avoid penetrating root balls or root masses. Allow enough slack to avoid rigid restraint of tree.

Begin maintenance of plant material.

**Method:** Conform to Section 430 and 795 of the MAG Standard Specifications, except as modified herein

**Section 430.5 Decomposed Granite Area:** of the Standard Specifications is modified to add:

Decomposed granite color and gradation shall be as shown on drawings. Color to be approved by Owner's Representative. Provide decomposed granite with no lumps or balls of clay, caliche,

organic matter, calcareous coating or any substance deleterious to plant life. Submit sample as required by these specifications.

Once area designated to receive decomposed granite or pit run rock, has been graded, compacted to proper level, and accepted, apply one application of pre-emergent to area and thoroughly water in. After first application of pre-emergent herbicide, install decomposed granite and pit run rock. Place decomposed granite and pit run rock in landscape areas as noted on drawings and water settle. After water settling, rake to provide uniform smooth surface. Remove decomposed granite, which in the opinion of Owner's Representative, has undesirable contaminants. Add decomposed granite to areas that are thin. Do second application of pre-emergent to decomposed granite and pit run rock area and thoroughly water in. Decomposed granite shall be spread to consistent depth and level below all tops of adjacent planters or sidewalks.

**Section 430.7 Clean Up:** of the Standard Specifications is modified to add:

During landscape work, keep pavements clean and work area in orderly condition. Broom, scrub or hose affected areas on a daily basis or as directed by Owner's Representative to maintain a clean and neat work area. Protect all hardscape areas from marking and damage by equipment tires.

Promptly remove soil and debris from paved areas. Clean wheels of vehicles prior to leaving site to avoid tracking soil onto surfacing of roads, walks or other paved areas.

Protect landscape work and materials from damage due to landscape installation, operations by other contractors, or by trespassers. Maintain protection during installation periods. Treat, repair or replace Contractor-damaged work as directed by Owner's Representative at no cost to Owner's Representative. Remove all debris, trash, tire or other markings on pavement and excess materials generated by landscape installation.

**Section 430.8 Plant Guarantee and Maintenance:** of the Standard Specifications is modified to add:

The Contractor shall maintain the landscape areas for 6-months after the Final Completion date is established.

The site shall be maintained continuously as areas are completed during construction and after Final Completion. Personnel shall be provided to keep the site free of debris, keep the site free of weeds using chemical controls, applying fertilization at the proper time, and cultivating planted areas.

Plants shall be kept in healthy and growing condition by watering, removing weeds, and pruning only as needed to prevent conflicts with pedestrians and vehicles. The site shall be inspected at a minimum of once per week for maintenance considerations by the Contractor's superintendent and a written weekly comprehensive maintenance report provided to the Owner's representative.

The irrigation system shall be maintained by making any necessary repairs regardless of cause, to assure a complete and operational system as originally constructed. Repairs shall be made immediately upon detection of a malfunction. The Contractor shall be responsible to provide proper protection for pedestrians and vehicles in the case of water runoff onto paved surfaces. The entire irrigation system shall be tested weekly and reported in the weekly maintenance report.

The Contractor shall provide 48 hours advance notification for all chemical applications. The Owner's Representative shall provide approval for all applications prior to spraying. The Contractor shall take necessary precautions to protect the public or other users from chemical drift or overspray. Spraying shall be done during times of low site occupation and when it is not windy.

Chemical applications shall be performed by a Certified Pesticide Applicator and in accordance with State Regulations. The contractor shall provide the name of the chemical being sprayed, application rate, date and time of application.

Plant materials shall be replaced within one week of detection of their demise, death, or decline in condition for any reason. Replacement of plant material shall be tracked in the weekly maintenance report.

Open pits shall be filled in immediately by the Contractor if plants are removed for any reason at any time.

The Contractor shall warranty all trees and shrubs for one year from date of Final Acceptance against defects including death and unsatisfactory growth, except for defects resulting from unusual phenomena or incidents beyond Contractor's control.

Remove and replace trees and shrubs or other plants found to be dead or in unhealthy condition at any time during warranty period or as directed by Owner's Representative. Replace plants that are in doubtful condition during warranty period, within seven days of plant's demise or notification thereof. Replacement of plants shall be tracked in the weekly maintenance report.

Replace plants lost to frost or heat/sun damage during warranty period at no additional cost to the City of Surprise. There is no limit to number of replacements due to frost damage. Contractor is responsible for complete removal of undesirable species such as but not limited to: Dallas, Bermuda, Johnson, and Nut Grasses or other undesirable weeds from the project area.

Replenish decomposed granite in existing planting areas to remain so that there is a 2" depth consistent throughout. This replenishing shall occur within the last 15 days of the warranty and maintenance period.

Re-stake trees as necessary to maintain proper support. Remove stakes only if directed by City of Surprise. If stakes are removed, fill cavity with clean soil only, not decomposed granite.

**Section 430.9 Plant Establishment Period:** of the Standard Specifications is modified to add:

Final Inspection of Landscaping: Complete all landscape planting and irrigation work in Contract. Notify Owner's Representative five days before proposed inspection to arrange schedule. Contractor and landscape contractor must be present at final inspection.

Perform corrective required actions within five days after inspection. Provide corrective work and materials replacement in accordance with Contract Documents at no cost to Owner's Representative.

Written documentation shall be created to establish the Final Completion date to initiate the start of the maintenance period.

### **Measurement and Payment:**

Measurement and payment for Shrubs 1 Gallon, Shrubs 3 Gallon, Shrubs 5 Gallon, 2" Caliper Tree shall be made at the unit price bid per each for the items as specified in the Bid Schedule and include all labor, materials, including tree and shrub backfill mix and planting tablets, and work associated with installing these items as shown on the plan.

Measurement and payment for Soil Preparation, Amendments & Conditioners shall be made at the unit price bid per square foot for the item as specified in the Bid Schedule and include all labor, materials, including chemical herbicides, and work associated with installing these items as shown on the plan.

Measurement and payment for Grading, Excavation, and Export of Median On-Site Soil shall be made at the unit price bid per cubic yard for the items as specified in the Bid Schedule and include all labor, materials, and work associated with completing this work as specified and where shown on the plan.

Measurement and payment for ½" Screened Decomposed Granite shall be made at the unit price bid per cubic yard for the item as specified in the Bid Schedule and include all labor and materials, associated with completing this work as specified and where shown on the plan.

Measurement and payment for 1 ½"-3" Pit Run Rock shall be made at the unit price bid per ton for the item as specified in the Bid Schedule and include all labor, materials, and work associated with installing the 1 ½"-3" Pit Run Rock as shown on the plan.

Measurement and payment for Plant Establishment Guarantee and Maintenance (including weed treatment) shall be made at the unit price bid per month for the item as specified in the Bid Schedule and include all labor, materials, and work associated with providing a Plant Establishment Guarantee and Maintenance. Including weed treatment as specified.

## **PART H: IRRIGATION BID ITEMS**

### **General**

The following bid items are numbered to correspond to the Litchfield Road Schedule of Values and Cactus Road Schedule of Values (collectively referred to as the Bid Schedule) and are included to explain details of work not covered by applicable Standard Specifications and to relate work and pay quantities to the specific Bid Item.

Any items of work shown on the plans but not covered by bid items, as shown on the Bid Schedule, shall be considered incidental to the project.

All work and materials shall conform to the Maricopa Association of Governments “Uniform Standard Specifications for Public Works Construction”, 2015 Edition (MAG Standard Specifications), except as modified in these Special Provisions or on the Contract Plans.

**Item 92 -- Electrical, 10 & 16 Station, Centrally Operated Controller and Cabinet with hand held remote controls (1 per Controller)**

**Item 93 -- Wireless Soil Sensor, Complete Installed, Tested- 1 per Electrical Controller**

**Item 94 -- Soil Moisture Sensor, Complete Installed, Tested**

### **Description:**

The contractor shall provide 10 and 16 station electrical, centrally operated controllers, two wire systems, with decoders, and hand held decoder remote controls, manufacturer provided, in the quantity and locations as indicated on project plans. The contractor shall provide also solar/soil moisture sensors with sensor inputs on controllers and all connections and coordination for a compatible and complete controller system. Equipment and materials shall be compatible, installed, tested and supplied as recommended by the manufacturer. Controllers shall include wireless solar sync, and soil click moisture sensors, one for shrubs and one for trees for each solar controller.

The contractor shall install the irrigation system in accordance with plans, details, and specifications to provide a complete operational system that delivers irrigation to all plant materials on the project. Materials and equipment for the entire system shall be submitted as part of the submittal packet for the project for approval. The contractor shall install materials and equipment which are approved for installation. Testing and review of materials and equipment shall be conducted throughout construction. Materials and equipment not operating properly shall be replaced by the contractor for approval by the owner's representative. The contractor shall be responsible to contact manufacturer's representatives to acquire information regarding install, testing, and operation of all components.

### **Construction Requirements:**

**Section 440.9 Automatic Control System Installation:** of the Standard Specifications is modified to add:

#### Wiring for valves and sensor to controller:

- Bury control wiring, between controller and electric valves in common trenches, strung as close as possible to main line pipe. Locate wires consistently below and to one side of pipe. If necessary, place wire in separate trenches. Obtain approval from City of Surprise for proposed location.
- Bundle wires at 10-foot intervals.
- Provide expansion loop at every electric control valve location (round valve box if needed). Form expansion loop by wrapping wire at least eight times around 3/4-inch pipe and withdrawing pipe to leave neatly coiled loop in round box.
- Make all splices and connections with a dry splice method.
- Install all control wire splices not occurring at control valve in separate round box.
- Install two wire system and decoders, 1 per valve.
- Provide decoder remote control unit per manufacturer.
- Install and test wireless solar and soil moisture sensors with irrigation system.
- Setup for controller system to operate with central irrigation system software programs as used by the City of Surprise.

The contractor shall provide all trenching, wire, materials, labor, and equipment for electrical centrally operated controllers in accordance with plans and manufacturer's requirements. Controllers shall be installed and include all work and materials for positioning, footings, pads, electrical connections, service entrance panels, sensor inputs, latching solenoids, wires and decoders, cabinets, locks, pedestals, conduits, supports, software installation/coordination with City system, communication ports, and testing, coordination with owner's representative for installation and software programming, testing of all relevant equipment, and approvals by owner. The contractor shall be responsible to make application to power company to acquire necessary power connections, panels, services, and addresses, and approvals by the power company.

The contractor shall install, confirm and demonstrate a complete and operational centrally controlled system that is compatible with the City of Surprise's centrally controlled system, including operation by remote controls, solar and soil sensors, and computer software methods.

#### Electrical Control Wiring: Low Voltage:

Electrical Control Wire, Connections and Splices: AWG UF UL approved No. 14 (1500 linear foot runs max) and No. 12 (2000 linear foot runs max) direct burial copper wire or larger, if required to operate system as designed.

Wire color system shall be as recommended by manufacturer for use with solar controller as approved.

#### **Measurement and Payment:**

Measurement and payment shall be made at the price bid per each for the items Electrically Centrally operated Controllers 10 and 16 station with wire, to include all labor, materials,

deliveries, inspections, completed warranty's and guarantees, and equipment to complete the work to install the electrically centrally operated controllers.

**Item 95 -- 1" Reduced Pressure Backflow Prevention Unit and Enclosure, with Concrete Pad**

**Description:**

The Contractor shall install backflow prevention units in accordance with City of Surprise details and specifications and project plans and details.

**Construction Requirements:**

The contractor shall install, schedule, document and provide certification and testing for all backflow prevention units, including flow and pressure readings after installation of the water meters and prior to installing the irrigation system in accordance with project plans. The contractor shall notify the owner and/or owner's representative for the date, time and location where certification and testing will be conducted.

Pressure readings shall also be documented with date, time, and a photo of the pressure gauge for each backflow prevention unit. Notice of testing shall be provided 48 hours prior to conducting the test. Documentation of testing results shall be provided to the owner or owner's representative within 24-hours of conducting test.

The Contractor shall provide as part of the submittal packet a site specific list of water taps to be tested. The list shall be prepared as a log sheet and have spaces designated for test dates, results, and approvals/disapprovals, and acceptance. This information shall also be provided on final As-Built drawings for review and approval.

**Measurement and Payment:**

Measurement and payment shall be made at the price bid per each for the item backflow prevention unit and enclosure with concrete pad, to include all labor, materials, deliveries, inspections, completed warranty's and guarantees, and equipment to complete the work to install the electrically centrally operated controllers.

<b><u>Item 96 --</u></b>	<b><u>1" Brass Master Valve</u></b>
<b><u>Item 97 --</u></b>	<b><u>1-1/2" Sch 40 Flow Sensor</u></b>
<b><u>Item 98 --</u></b>	<b><u>1" Remote Control Valve and Assembly w/Wye Strainer, Pressure Regulator, and Box (Purple)</u></b>
<b><u>Item 99 --</u></b>	<b><u>1 1/2" Sch 40 PVC Mainline (Purple)</u></b>
<b><u>Item 100 --</u></b>	<b><u>1" Sch 40 PVC Irrigation Pipe (Purple)</u></b>
<b><u>Item 101 --</u></b>	<b><u>3/4" Sch 40 PVC Irrigation Pipe (Purple)</u></b>
<b><u>Item 102 --</u></b>	<b><u>1/2" Sch 40 PVC Irrigation Pipe (Purple)</u></b>
<b><u>Item 103 --</u></b>	<b><u>Metal Locator Tape</u></b>
<b><u>Item 104 --</u></b>	<b><u>Flush Caps and 7" Round Box (Purple)</u></b>
<b><u>Item 105 --</u></b>	<b><u>Mainline Gate Valve and 10" Round Box (Purple)</u></b>
<b><u>Item 106 --</u></b>	<b><u>Isolation Valve and Box for Lateral Lines (Purple)</u></b>
<b><u>Item 107 --</u></b>	<b><u>Multi-Port Emitter and Riser Assembly w/Bug Cap</u></b>
<b><u>Item 108 --</u></b>	<b><u>4" Sch 40 PVC Irrigation Sleeve</u></b>
<b><u>Item 109 --</u></b>	<b><u>6" Sch 40 PVC Irrigation Sleeve</u></b>
<b><u>Item 110 --</u></b>	<b><u>Electrical Conduit Extension</u></b>

**Description:**

The irrigation system for the landscape shall consist of the items above and be installed per project plans and details.

**Construction Requirements:**

These items are for providing, installing and testing all irrigation system components as shown on the plans and equipment as specified, including application for water meters, installation of controllers, copper and PVC piping, sleeves, electrical conduit extensions, backflow prevention assemblies, enclosures, valves, valve boxes, pressure regulators, wye strainers, fittings, emitters, boxes, sensors, remotes, wiring, and all other appurtenances for a fully functional irrigation system. Items of work include but are not limited to:

- Confirmation and Blue Staking for the location for all existing utility lines and sources. Provision of connection to existing utilities for new irrigation system at locations as shown and approved by the City of Surprise.
- Assurance that private systems adjacent to and affected by work are in operating condition and approved by adjacent property owner or designated representative at final completion.
- Clean up, inspection, and adjustments for complete coverage.
- Required regulatory tests, inspections, maintenance, and warranty.
- Provision of As-Built Drawings in hard copy and electronic (PDF) format.
- Completion of punch list, final walk through and acceptance.
- Warranty and maintenance periods.

**Materials:** Conform to Section 440 and 757 of the MAG Standard Specifications, except as modified herein.



**Section 440.3 Materials:** of the Standard Specifications is modified to add:

General Piping:

Pressure Supply Line (from point of connection through backflow prevention unit): Type K, hard tempered Copper.

Pressure Supply Lines (downstream of backflow prevention units): Schedule 40 PVC.

All Lateral Piping: As shown on plans and colored purple.

Emitter Tubing: Per Detail – Not to exceed 5' in length.

Copper Pipe and Fittings:

Copper Pipe: Type K, hard tempered.

Fittings: Wrought copper, solder joint type.

Joints: Soldered with solder, 45% silver, 15% copper, 15% zinc and 24% cadmium and solids at 1125° F and liquids at 1145° F.

Brass Pipe and Fittings:

Brass Pipe: 85% red brass, ANSI Schedule 40 screwed pipe.

Fittings: Medium brass, screwed 125-pound class.

Plastic Pipe and Fittings:

Identify all pipes with the following indelible markings such as Manufacture's name, nominal pipe size, Schedule of class, Pressure Rating (PSI), NSF (National Sanitation Foundation) seal of approval, and Date of Extrusion.

Solvent Weld Pipe: Manufactured from virgin polyvinyl chloride (PVC) compound in accordance with ASTM D2241 and ASTM DI784; cell classification 12454-B, Type 1, Grade

Pipe shall be purple.

Fittings: Standard weight, Schedule 80, injection molded PVC; complying with ASTM DI784 and D2466, cell classification 12454-B.

Threads: Injection molded type (where required).

Tees and Ells: Side gated

Threaded Nipples: ASTM D2464, Schedule 80 with molded threads.

Joint Cement and Primer: Type as recommended by manufacturer of pipe and fittings.

Low Pressure/Volume Systems:

Fittings: Type and make recommended by tubing manufacturer.

Drip Emitter Assembly to include solenoid valve, wye strainer, and pressure regulator as one unit as manufactured and supplied by the manufacturer. Hunter Industries or approved equal.

Emitter: Single and Multiport, by Bowsmith or approved equal. Type, size and placement as shown on drawings.

### Valve Boxes and Hardware:

For pull boxes for control wiring splices: round boxes manufactured by Carson Industries, or approved equal. All in-ground boxes with shall be colored purple for reclaimed water use in the future.

Valve lids shall have bolt down tops and stainless steel hardware. Provide submittal and proof of stainless steel hardware with submittals and at time of installation.

For valves, wye strainers and pressure regulator assembly, jumbo size rectangular boxes as manufactured by Carson Industries, or approved equal. Only one valve will be approved per box.

For pull boxes for control wiring splices: As manufactured by Carson Industries, or approved equal with stainless steel hardware.

**Section 440.5 Trench Excavation and Backfill:** of the Standard Specifications is modified to add:

Do not begin backfilling operations until required system tests have been completed.

Provide material and compact to assure flush grades after settlement. Level finish grade at trenches before placement of decomposed granite.

Material not suitable for backfill shall be hauled away. Provide non-toxic and suitable backfill if excavated material is unacceptable or not sufficient to meet backfill, compaction and final grade requirements.

Do not leave trenches open more than 48 hours. Protect excavations in compliance with OSHA regulations.

Compact backfill to 85% maximum density, determined in accordance with ASTM D155-7, utilizing the following methods:

- Mechanical tamping.
- Puddling or ponding and/or jetting is prohibited.

**Section 440.6 Pipe installation:** of the Standard Specifications is modified to add:

PVC Piping: Snake pipe in trench as much as possible to allow for expansion and contraction. Do not install pipe when air temperature is below 40°F. Place manual drain valves or flush caps at low points and dead ends of pressure supply piping to ensure complete drainage of system. When pipe laying is not in progress, or at end of each day, close pipe ends with tight plug or cap.

Solvent Weld PVC Pipe: Lay pipe and make all plastic to plastic joints in accordance with manufacturer's recommendations.

PVC Primer: Specifically formulated for pipe and type of connection, as recommended by pipe manufacturer. Deliver in new and unopened containers. Solvent welds shall be allowed to cure at least 24 hours before testing. Potable water supply shall be used for all testing.

Sleeves: All piping under paving shall be sleeved with minimum 3" schedule 40 sleeve as noted and detailed. Contractor shall up size sleeves if pipe cannot move freely inside sleeves. Do not install couplings and fittings on pipe that runs through sleeves.

Install sleeves and pipe at depth required by local codes. Compact backfill material in 6 inch lifts. Set in place, cap and pressure test all piping under paving, in presence of Owner's Representative prior to backfilling and paving operations.

For pipe fittings up to and including 2 1/2", fittings and couplings are slip fitting tapered socket solvent weld type. Tapered socket solvent weld fittings are Schedule 80, or equal to or greater than schedule and pressure rating of plastic pipe being joined.

Size tapered fittings so dry, un-softened taper cannot be inserted more than halfway into socket. Plastic saddles and flange fittings are not permitted.

**Section 440.7 Valves, Valve Boxes, and Special Equipment Installation and Section 440.8 Sprinkler Head Installation and Adjustment** of the Standard Specifications are modified to add:

Place BFPU, irrigation equipment and controller with coordination and approval with other trades and with owner.

#### Valve Boxes:

Install one valve box for each type of valve installed as detailed. Valve box extensions are not acceptable except for master valves if needed. Cutting of valve boxes is not allowed. Install pea gravel sump after compaction of all trenches. Place final portion of gravel inside valve box after valve box is backfilled and compacted.

Valve boxes shall be molded non-corrosive plastic, ASTM D638, D-356.

Brand or rout controller letter and station number of lid on each valve box. Letter and number size: 1 inch to 1-1/2 inches. Depth of branding 1/8 inch into valve box lid. Create consistently sized and appearing letters that are clearly readable.

Electric Control Valves: Install at depth below finished grade and box lid, and above pea gravel as shown on drawings and as detailed. When grouped together, allow no more than 12 inches between valve boxes. Install each remote control valve in a separate valve box. Install individual valve box flush with ground and perpendicular (longitudinally) to adjacent curb. Secure

approval from Owner for valve box locations and positioning prior to installation. Place clean pea gravel in bottom of each box below valve, a minimum of 2 cubic feet.

Include brick supports, one at each valve box corner.

Provide stainless steel hardware and certification that hardware is stainless steel (i.e. bolts and washers) to secure all lids to boxes.

Drip Valve Assemblies: Install drip valve assembly as detailed with minimum 2 cubic feet of pea gravel in bottom of valve box.

Drip Emitters: Place emitters as detailed. Flag each plant location to direct placement of emitters and provide layout for all plant materials. Use different color flags for trees. Secure owner's acceptance for plant locations prior to completing irrigation system installation. Use multi-port emitters for trees and shrubs. Add single ports as needed to provide irrigation to all installed plant material.

**Section 440.10 Flushing and Testing:** of the Standard Specifications is modified to add:

Construction Review: The owner's representative shall periodically observe work in progress and the contractor's interpretation of the construction documents and to address questions with regards to the installation.

The contractor shall schedule reviews for irrigation system layout and testing prior to covering work and prior to backfilling around trees. Impromptu reviews by owner or owner's representative may occur at any time during the project. Final review will occur at the completion of the irrigation system installation and As-Built Drawing submittals. The contractor is responsible maintain As-Built Drawings on a daily basis for review by the owner's representative. As-Built drawings shall be provided in hard copy and electronic on a compact disc (CD) prior to project acceptance. CD shall be labeled with client name, project name, number and date.

Flushing: After piping, risers, and valves are in place and connected, before installation of distribution equipment, thoroughly flush piping system from dead end fittings under full head of water pressure. Maintain flushing for ten minutes through furthestmost valves. Cap risers after flushing.

Testing: Notify owner representative in advance of all testing. Supply force pump and all other test equipment as needed.

After backfilling and installation of all control valves, fill pressure supply line with water and pressurize to 40 PSI over designated static pressure or 120 PSI, whichever is greater, for two hours. All pressure tests shall be done with PITO tube and gauge.

Leakage/Pressure Loss: Test is acceptable if no leakage or loss of pressure is evident during test period. Leakage will be detected and documented by inspection with system in full operation.

Replace defective pipe, fitting, joint, valve or appurtenance. Cement or caulking to seal leaks will not be allowed. Repeat testing until the pipe is approved by the owner's Representative.

Retest system until test pressure can be maintained for duration of tests. Before final acceptance, pressure supply line shall remain under pressure for 48 hours. Record and document time and date for all pressure testing whether or not the owner is able to be present. Photographs of pressure readings are acceptable with a time date stamp. Provide readings to owner as soon as complete via email. Include pressure readings and documentation as part of the close out documents.

Final Acceptance: Upon completion of installation, "fine-tune" entire system by regulating valves, adjusting patterns and break-up arms, and setting pressure reducing valves at proper and similar pressure to provide optimum and efficient coverage. Flush and adjust distribution heads for optimum performance and to prevent overspray onto walks, roadways and buildings. Heads of same type shall be operating at same pressure. Make all adjustments before Final Acceptance, as directed. Arrange for owner's representative's presence 48 hours in advance of walk-through. Show evidence to owner's representative that owner has received all accessories, charts, testing documentation, and equipment as required.

Operate each zone in sequence from controllers, using remotes if available, for owner's representative at time of walk-through to insure correction of all incomplete items. The owner's representative will visually observe operation, water application patterns and leakage. Adjust items deemed not acceptable by owner's representative. Owner's representative will do only one final acceptance walk-through. Set irrigation clock appropriate for season. Provide schedule of clock operation including each station, run time, run duration and frequency of irrigation.

### **Measurement and Payment**

Measurement and payment shall be made at the price bid per each and linear foot for the items comprising the irrigation system. Refer to bid tab for details. Measurement and payment shall include all labor, materials, deliveries, inspections, completed warranties and guarantees, and equipment to complete the work to install a complete irrigation system.

## **PART I: ALTERNATE BID ITEMS**

### **General**

The following bid items correspond to the Litchfield Road Schedule of Values and Cactus Road Schedule of Values (collectively referred to as the Bid Schedule) and are included to explain details of work not covered by applicable Standard Specifications and to relate work and pay quantities to the specific Bid Item.

Any items of work shown on the plans but not covered by bid items, as shown on the Bid Schedule, shall be considered incidental to the project.

All work and materials shall conform to the Maricopa Association of Governments “Uniform Standard Specifications for Public Works Construction”, 2015 Edition (MAG Standard Specifications), except as modified in these Special Provisions or on the Contract Plans.

Alternate bid items quoted on the Bid Schedule will be reviewed and accepted or rejected at the Owner’s option. Accepted alternates will be identified in final Owner Contract Agreement.

The contractor shall be responsible for coordinating related work and modify surrounding work as required.

### **Add Alternate Bid Item 1 – 4”x8” Decorative Pavers**

#### **Description:**

State a bid item price to provide 4”x8” Holland Stone Antique Terra Cotta by Pavestone, (or approved equal) pavers installed over prepared compacted grade and on slurry mix per detail. If selected by the Owner, decorative pavers shall be installed in place of, pit run rock in median noses where noted on plans.

#### **Construction Requirements:**

Slurry mix shall serve as the base course for decorative pavement, where installed, and consist of a cement enriched aggregate base slurry with one sack Type II Portland cement per cubic yard of aggregate base course material. Aggregate base slurry shall be installed over sub-grade soil compacted to a minimum of 95% density. The surface elevation of the aggregate base slurry shall be set to bring the 1-inch sand laying course, plus the thickness of the paving stones or bricks to the desired finish elevation of the decorative pavement. The surface of the aggregate abase slurry shall not vary more than 1/8” in 10 feet.

Pavers shall be cut to size as needed. Soil compaction test results and proposed mix for slurry will be required for review and approval prior to installation of paver areas.

#### **Measurement and Payment**

Measurement and Payment will be made at the unit price bid per square foot for this item if selected by the Owner.

### **Add Alternate Bid Item 2 – 8”x8” Concrete Header (At End of Each Section of Pavers)**

#### **Description:**

State a bid item price to provide 8”x8” gray concrete curb, materials per MAG Detail 222 Type B-modified per detail on drawing. Curb shall be formed and poured on grade set per detail provided in drawing and at edges of paver installation in median noses.

If selected by the Owner, concrete curbs shall be installed at the ends of all decorative paver installation, over compacted subgrade.

**Construction Requirements:**

Provide mix for approval with project submittals.

**Measurement and Payment**

Measurement and Payment will be made at the unit price bid per linear foot for this item if selected by the Owner.

**Deduct Alternate Bid Item 1 – Shrub 3 Gallon**

**Description:**

If selected by the Owner, decorative pavers shall be installed in place of, 3 gallon shrubs in median noses where noted on plans.

**Construction Requirements:**

Pavers shall be cut to size as needed. Soil compaction test results and proposed mix for slurry will be required for review and approval prior to installation of paver areas.

**Measurement and Payment**

Measurement and Deduction in price will be made at the unit price bid per each for this item if selected by the Owner.

**Deduct Alternate Bid Item 2 – Multiport Emitter and Riser Assembly w/ Bug Cap**

**Description:**

If selected by the Owner, decorative pavers shall be installed in place of, Multiport Emitter and Riser Assembly w/ Bug Cap in median noses where noted on plans.

**Construction Requirements:**

Pavers shall be cut to size as needed. Soil compaction test results and proposed mix for slurry will be required for review and approval prior to installation of paver areas.

**Measurement and Payment**

Measurement and Deduction in price will be made at the unit price bid per each for this time if selected by the Owner.

### **Deduct Alternate Bid Item 3 – ¾” PVC Pipe**

#### **Description:**

If selected by the Owner, decorative pavers shall be installed in place of, ¾” PVC Pipe in median noses where noted on plans.

#### **Construction Requirements:**

Pavers shall be cut to size as needed. Soil compaction test results and proposed mix for slurry will be required for review and approval prior to installation of paver areas.

#### **Measurement and Payment**

Measurement and Deduction in price will be made at the unit price bid per linear foot for this item if selected by the Owner.

**END OF SPECIAL PROVISIONS**



